

# Square D General Purpose Relays

Class 8501R plug-in relays

- 8501RS41 (SPDT)
- 8501RS42 (DPDT)
- 8501RS43 (3PDT)
- 8501RS44 (4PDT)

Catalog  
2014



 **SQUARE D**™

by Schneider Electric

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### General Specifications

<b>Conforming to standards</b>		IEC/EN 61810-1, UL 508, CSA C22-2 n° 14, UL60947-4-1A
<b>Product certifications</b>	8501RS(D)41●●● 8501RS(D)42●●● 8501RS(D)43●●● 8501RS(D)44●●●	cULus File E3190 CCN NLDX, NLDX7; cJURus File E3190 CCN NLDX2, NLDX8; CSA; CE; RoHS compliant
<b>Ambient air temperature</b> around the device	Storage	°C (F) - 40 to + 85 (-40 to +185)
	Operation	°C (F) - 40 to + 55 (-40 to +131)
<b>Vibration resistance</b> conforming to IEC/EN 60068-2-6	In operation	3 gn (35 to 150 Hz) and ± 1 mm (10 to 35 Hz) with and without retention clip
	Not operating	5 gn (35 to 150 Hz) and ± 1 mm (10 to 35 Hz) with and without retention clip
<b>Degree of protection</b>	Conforming to IEC/EN 60529	IP40
<b>Shock resistance</b> conforming to IEC/EN 60068-2-27	In operation	15 gn (11 ms)
	Not operating	15 gn (11 ms)
<b>Protection category</b>		RT I
<b>Mounting position</b>		Any

### Insulation Specifications

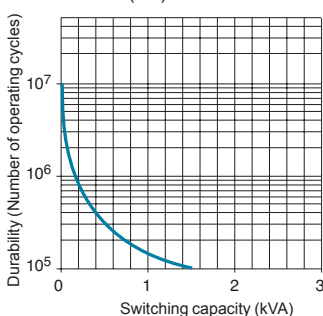
<b>Rated insulation voltage (Ui)</b>		<b>V</b>	250 (IEC), 300 (UL, CSA)
<b>Rated impulse withstand voltage (Uimp)</b>		<b>kV</b>	4 (1.2/50 µs)
<b>Dielectric strength</b> (rms voltage)	Between coil and contact	<b>Vac</b>	2000
	Between poles	<b>Vac</b>	2000
	Between contacts	<b>Vac</b>	1500

### Contact Specifications

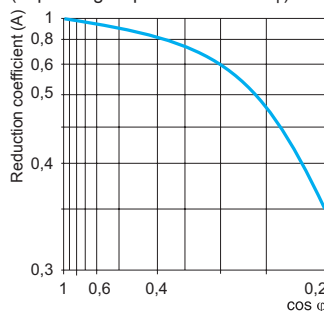
Relay type		8501RS41●●● 8501RSD41●●●	8501RS42●●● 8501RSD42●●●	8501RS43●●● 8501RSD43●●●	8501RS44●●● 8501RSD44●●●
<b>Number and type of contacts</b>		1 C/O	2 C/O	3 C/O	4 C/O
<b>Contact materials</b>		Ag alloy with Au flash			
<b>Conventional thermal current (Ith)</b>	For ambient temperature ≤ 55°C	<b>A</b>	15		
<b>Rated operational current</b>	Conforming to IEC in utilization categories AC-1 and DC-1	NO	<b>A</b>	15 at 250 Vac / 28 Vdc	
		NC	<b>A</b>	7.5 at 250 Vac / 28 Vdc	
	Conforming to UL	Resistive	<b>A</b>	15 at 120 Vac (100k cycles) 15 at 277 Vac (100k cycles) 15 at 28 Vdc (100k cycles)	
		Motor	<b>HP</b>	1/2 at 120 Vac (1k cycles) 1 at 277 Vac (1k cycles)	
		Pilot Duty		B300	
	Conforming to CSA	Resistive	<b>A</b>	15 at 120 Vac (100k cycles) 10 at 277 Vac (100k cycles) 15 at 28 Vdc (100k cycles)	
Motor		<b>HP</b>	1/2 at 120 Vac (1k cycles) 1 at 277 Vac (1k cycles)		
Pilot Duty			B300		
<b>Minimum switching requirement</b>		<b>mA</b>	10 at 17 Vdc		
<b>Maximum switching voltage</b>		<b>V</b>	250 Vac / 28 Vdc (IEC); 300 Vac / 30 Vdc (UL)		
<b>Switching capacity</b>	Maximum	Vac	<b>VA</b>	4155 (UL), 3750 (IEC)	
		Vdc	<b>W</b>	420 (UL & IEC)	
	Minimum		<b>mW</b>	170 (MCTF ≥ 10 Million)	
<b>Maximum operating rate</b> In operating cycles/hour	No-load			18,000	
	Under load			1200	
<b>Utilization coefficient</b>				20%	
<b>Mechanical durability</b>	Cycles			10,000,000	
<b>Electrical durability</b> Operating cycles	Resistive load			100,000 (unless otherwise specified)	
	Inductive load			See curve below	

### Performance curves

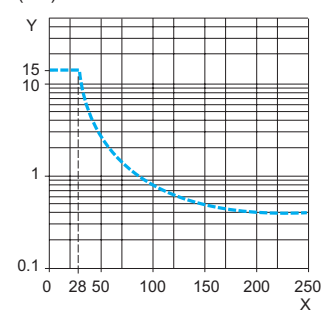
**Electrical durability of contacts**  
Resistive load (AC)



Reduction coefficient for inductive load (AC)  
(depending on power factor cos φ)



Maximum switching capacity on resistive load  
(DC)



Durability (inductive load) = durability (resistive load) x reduction coefficient.

# Square D General Purpose Relays

## Class 8501R plug-in relays

Coil specifications				8501RS41●●● 8501RSD41●●●	8501RS42●●● 8501RSD42●●●	8501RS43●●● 8501RSD43●●●	8501RS44●●● 8501RSD44●●●	
Average consumption (1)	AC	VA		1.6	1.1	1.7	2.5	
	DC	W		1.1	0.85	1.5	1.6	
Average consumption with LED (1)	AC	VA		1.9	1.4	2.05	2.85	
	DC	W		1.4	1.15	1.85	1.95	
Drop-out voltage threshold	AC	VA		≥ 0.15 Uc				
	DC	W		≥ 0.10 Uc				
Response time Operate time (at 100% Uc)	AC	ms		20 (max.)				
	DC	ms		20 (max.)				
Release time (at 100% Uc)	AC	ms		20 (max.)				
	DC	ms		20 (max.)				
Control circuit voltage Uc	V		12	24	110	120	240	
Relay control voltage codes			V51	V53	V60	–	–	
DC supply	Average resistance at 20 °C ± 10%	8501RSD41	Ω	115	450	9460	–	–
		8501RSD42	Ω	160	640	13440	–	–
		8501RSD43	Ω	80	320	6720	–	–
		8501RSD44	Ω	75.8	303	6370	–	–
Operating voltage limits	Min.	Vdc		9.6	19.2	88	–	–
	Max.	Vdc		13.2	26.4	121.0	–	–
Relay control voltage codes			V36	V14	–	V20	V24	
AC supply	Average resistance at 20 °C ± 15%	8501RS41	Ω	44	177	–	4430	17720
		8501RS42	Ω	44	177	–	4430	17720
		8501RS43	Ω	30	110	–	2880	11300
		8501RS44	Ω	20	80	–	2100	8000
Operating voltage limits	Min.	Vac		9.6	19.2	–	96	192
	Max.	Vac		13.2	26.4	–	132	264

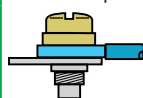
(1) Average consumption tolerance for 8501RS(D)41, 43 and 44 is +10% / -20%; average consumption tolerance for 8501RS(D)42 is +10% / -25%.

Socket specifications					
Socket type		8501NR41	8501NR42	8501NR43	8501NR44
Relay types used		8501RS41●●● 8501RSD41●●●	8501RS42●●● 8501RSD42●●●	8501RS43●●● 8501RSD43●●●	8501RS44●●● 8501RSD44●●●
Contact terminal arrangement		Separate			
Wire connection method		Screw clamp terminals			
Product certifications		cURus File E66924 CCN SWIV2, SWIV8; CSA; CE; RoHS compliant			
Conforming to standards		IEC 61984, UL 508, CSA 22.2 No. 14			

Electrical specifications			
Conventional thermal current (Ith)	A	15 at 300 Vac (UL)	10 at 300 Vac (UL)

Insulation specifications		
Between adjacent output contacts	Vrms	2000
Between input and output contacts	Vrms	2000
Between contacts and DIN rail	Vrms	2000

General specifications			
Ambient air temperature around the device	Storage	°C (°F)	- 40 to + 85 (- 40 to + 185)
	Operation	°C (°F)	- 40 to + 55 (- 40 to + 131)
Degree of protection	Conforming to IEC/EN 60529		IP 20
Connection	Solid wire	1 conductor	1.5 mm <sup>2</sup> - AWG 16
		2 conductors cable end	0.75 mm <sup>2</sup> - AWG 18
	Flexible wire with cable end	1 conductor	1.5 mm <sup>2</sup> - AWG 16
		2 conductors	0.75 mm <sup>2</sup> - AWG 18
Maximum tightening torque / Screw size	Lb-ft (N•m)		9 (1.0) / M3.5 screw
Mounting			On 35 mm DIN rail / on panel
Mounting on DIN rail			By plastic clip
Terminal referencing			IEC, NEMA
Compatible with hold down clip			Yes
Compatible with restraining strap			No
Wire connection method			Screw clamp terminals



# Square D General Purpose Relays

## Class 8501R plug-in relays



8501RS41P14V20



8501RSD42P14V51



8501RS43P14V20



8501RS44P14V20

References					
Control circuit voltage	Number and type of contacts - Thermal current (Ith)		2 C/O - 15 A		
	1 C/O - 15 A	Weight	Unit reference	Weight	Unit reference
	Unit reference	kg/lb		kg/lb	
<b>Plug-in relays with standard cover (sold in lots of 1)</b>					
12 Vdc	8501RSD41V51	0.026/0.057	8501RSD42V51	0.036/0.079	
24 Vdc	8501RSD41V53	0.026/0.057	8501RSD42V53	0.036/0.079	
110 Vdc	8501RSD41V60	0.026/0.057	8501RSD42V60	0.036/0.079	
12 Vac	8501RS41V36	0.026/0.057	8501RS42V36	0.036/0.079	
24 Vac	8501RS41V14	0.026/0.057	8501RS42V14	0.036/0.079	
120 Vac	8501RS41V20	0.026/0.057	8501RS42V20	0.036/0.079	
240 Vac	8501RS41V24	0.026/0.057	8501RS42V24	0.036/0.079	
<b>Plug-in relays with standard cover and LED (sold in lots of 1)</b>					
12 Vdc	8501RSD41P14V51	0.026/0.057	8501RSD42P14V51	0.036/0.079	
24 Vdc	8501RSD41P14V53	0.026/0.057	8501RSD42P14V53	0.036/0.079	
110 Vdc	8501RSD41P14V60	0.026/0.057	8501RSD42P14V60	0.036/0.079	
12 Vac	8501RS41P14V36	0.026/0.057	8501RS42P14V36	0.036/0.079	
24 Vac	8501RS41P14V14	0.026/0.057	8501RS42P14V14	0.036/0.079	
120 Vac	8501RS41P14V20	0.026/0.057	8501RS42P14V20	0.036/0.079	
240 Vac	8501RS41P14V24	0.026/0.057	8501RS42P14V24	0.036/0.079	
Control circuit voltage	Number and type of contacts - Thermal current (Ith)		4 C/O - 15 A		
	3 C/O - 15 A	Weight	Unit reference	Weight	Unit reference
	Unit reference	kg/lb		kg/lb	
<b>Plug-in relays with standard cover (sold in lots of 1)</b>					
12 Vdc	8501RSD43V51	0.054/0.119	8501RSD44V51	0.071/0.157	
24 Vdc	8501RSD43V53	0.054/0.119	8501RSD44V53	0.071/0.157	
110 Vdc	8501RSD43V60	0.054/0.119	8501RSD44V60	0.071/0.157	
12 Vac	8501RS43V36	0.054/0.119	8501RS44V36	0.071/0.157	
24 Vac	8501RS43V14	0.054/0.119	8501RS44V14	0.071/0.157	
120 Vac	8501RS43V20	0.054/0.119	8501RS44V20	0.071/0.157	
240 Vac	8501RS43V24	0.054/0.119	8501RS44V24	0.071/0.157	
<b>Plug-in relays with standard cover and LED (sold in lots of 1)</b>					
12 Vdc	8501RSD43P14V51	0.054/0.119	8501RSD44P14V51	0.071/0.157	
24 Vdc	8501RSD43P14V53	0.054/0.119	8501RSD44P14V53	0.071/0.157	
110 Vdc	8501RSD43P14V60	0.054/0.119	8501RSD44P14V60	0.071/0.157	
12 Vac	8501RS43P14V36	0.054/0.119	8501RS44P14V36	0.071/0.157	
24 Vac	8501RS43P14V14	0.054/0.119	8501RS44P14V14	0.071/0.157	
120 Vac	8501RS43P14V20	0.054/0.119	8501RS44P14V20	0.071/0.157	
240 Vac	8501RS43P14V24	0.054/0.119	8501RS44P14V24	0.071/0.157	



Socket 8501NR41 +  
Clip 8501NH42 +  
Relay 8501RS41P14V20



Socket 8501NR42 +  
Relay 8501RSD42P14V51



Socket 8501NR43 +  
Relay 8501RS43P14V20

### References (continued)

#### Sockets

Contact terminal arrangement	Connection	Relay type	Sold in lots of	Unit reference	Weight kg/lb
Separate	Screw clamp terminals	8501RS(D)41●●●	1	8501NR41	0.042/0.093
			10	8501NR41B(1)	0.042/0.093
		8501RS(D)42●●●	1	8501NR42	0.054/0.119
			10	8501NR42B(1)	0.054/0.119
		8501RS(D)43●●●	1	8501NR43	0.072/0.159
			10	8501NR43B(1)	0.072/0.159
8501RS(D)44●●●	1	8501NR34	0.094/0.207		
	10	8501NR34B(1)	0.094/0.207		

(1) Please note that the "B" suffix only designates quantities of 10 and is not printed on the socket.

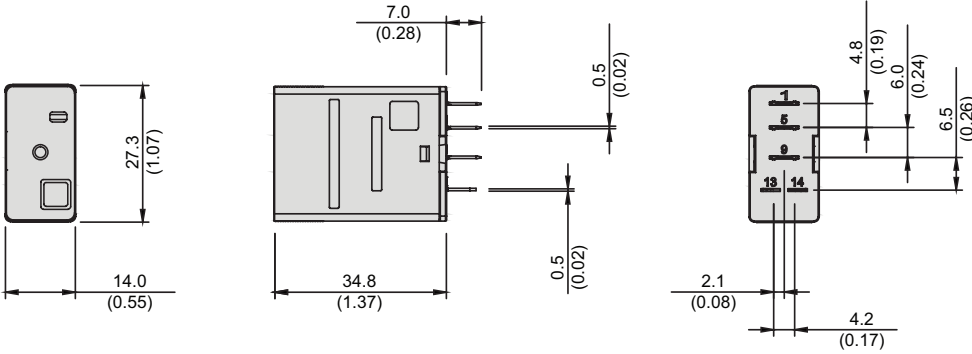
#### Accessories

Description	For use with	Sold in lots of	Unit reference	Weight kg/lb
Plastic ID clip	8501NR41 socket	Supplied with socket	—	—
Metal hold-down clip	8501NR42 socket	10	8501NH42	0.001/0.002
Metal hold-down clip	8501NR43 socket	10	8501NH42	0.001/0.002
Metal hold-down clip	8501NR34 socket	10	8501NH42	0.001/0.002

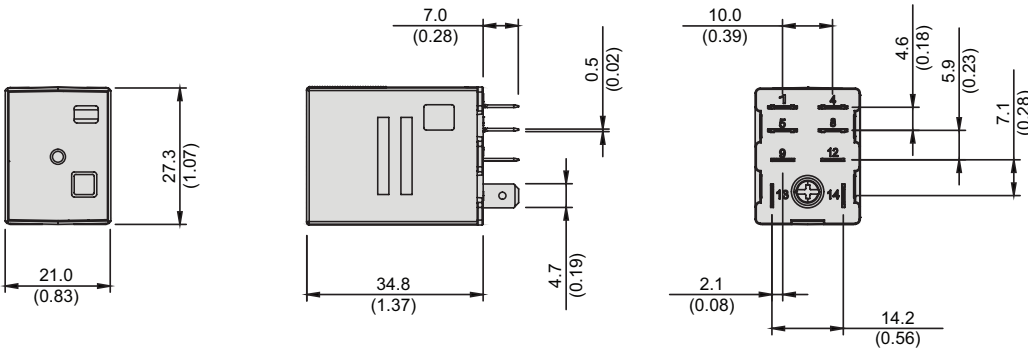
**Dimensions: mm (in.)**

**Plug-in relays**

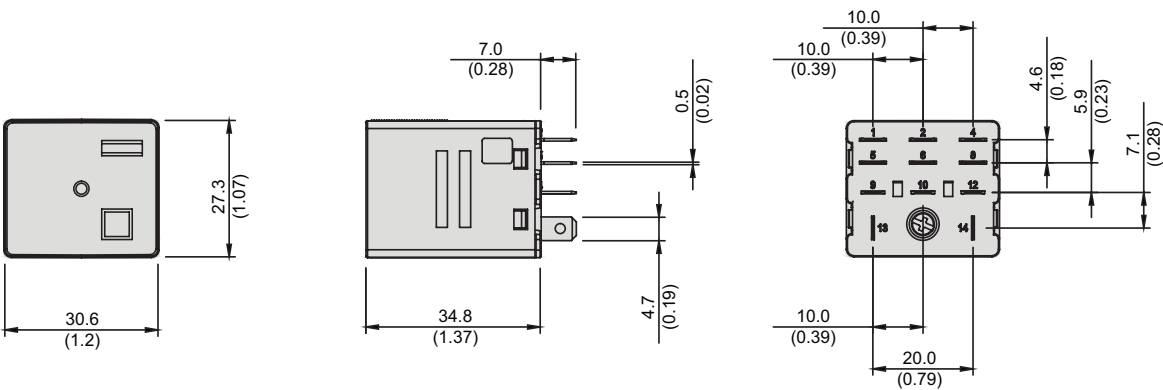
**8501RS41, 8501RSD41**



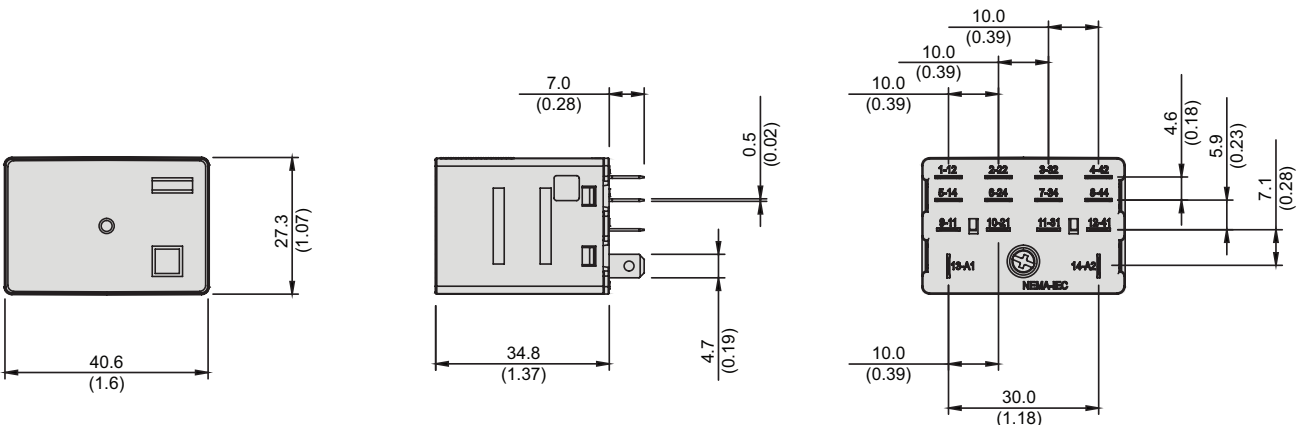
**8501RS42, 8501RSD42**



**8501RS43, 8501RSD43**



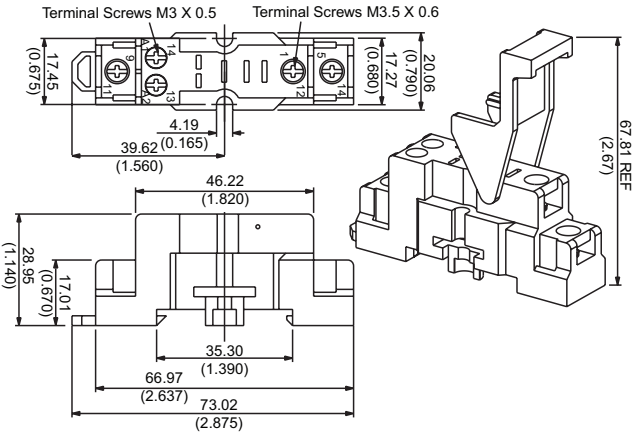
**8501RS44, 8501RSD44**



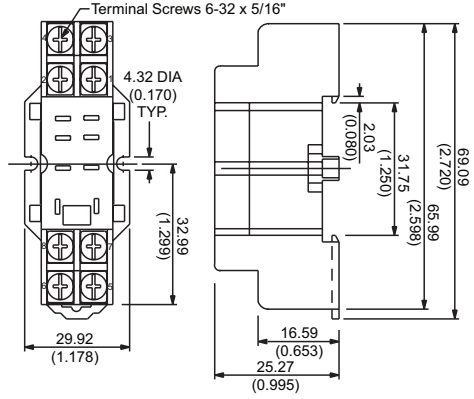
**Dimensions: mm (in.)**

**Sockets**

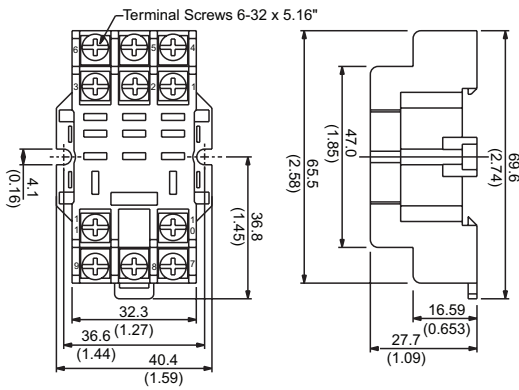
**8501NR41**



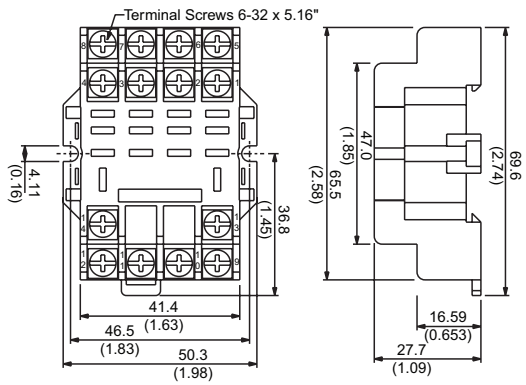
**8501NR42**



**8501NR43**



**8501NR34**

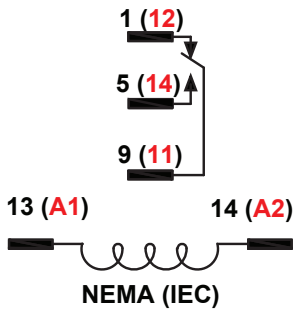




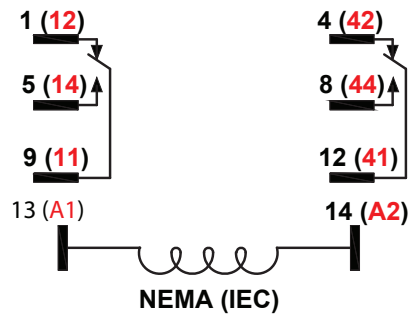
## Wiring diagrams

### Plug-in relays

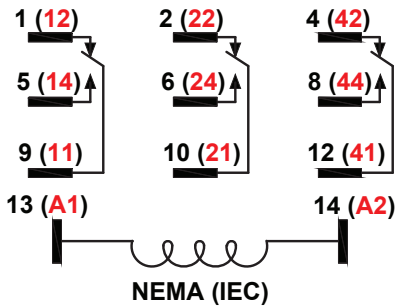
8501RS41, 8501RSD41



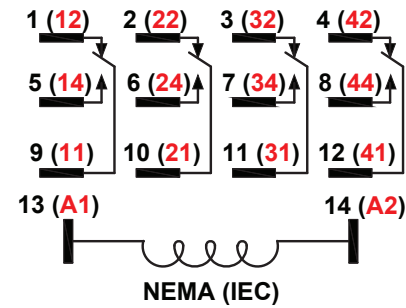
8501RS42, 8501RSD42



8501RS43, 8501RSD43

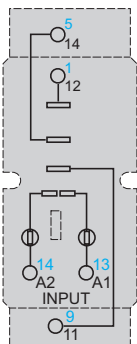


8501RS44, 8501RSD44

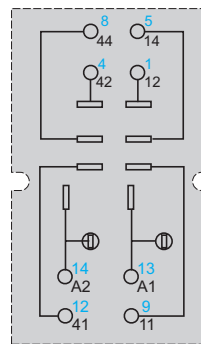


### Sockets

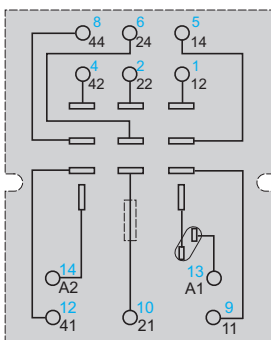
8501NR41



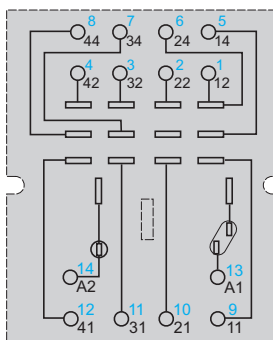
8501NR42



8501NR43



8501NR34



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