

# Square D General Purpose Relays

Class 8501K universal relays

Catalog  
2014



 **SQUARE D**™

by Schneider Electric

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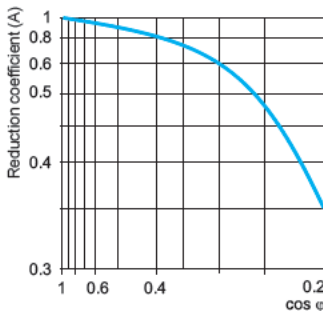
■ Specifications . . . . .	3
■ References . . . . .	5
■ Dimensions . . . . .	7
■ Wiring diagrams . . . . .	9

General Specifications			
<b>Conforming to standards</b>			IEC/EN 61810-1, UL 508, CSA C22-2 n° 14
<b>Product certifications</b>			cULus File E3190 CCN NLDX, NLDX7; cURus 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); 5 cycles
	Not operating		4 gn (35 to 150 Hz) and ± 1 mm (10 to 35 Hz); 5 cycles
<b>Degree of protection</b>	Conforming to IEC/EN 60529		IP 40 (housing only)
<b>Shock resistance</b> conforming to IEC/EN 60068-2-27	Opening		10 gn (11 ms)
	Closing		10 gn (11 ms)
<b>Protection category</b>			RT I
<b>Mounting position</b>			Any

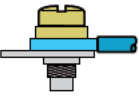
Insulation Specifications			
<b>Rated insulation voltage (Ui)</b>	Conforming to IEC/EN 60947	V	250 (IEC), 300 (UL, CSA)
<b>Rated impulse withstand voltage (Uimp)</b>		kV	4 (1.2/50 μs)
<b>Dielectric strength</b> (rms voltage)	Between coil and contact	Vac	2500
	Between poles	Vac	2000
	Between contacts	Vac	1500

Contact Specifications				
<b>Relay type</b>			8501KFR12●●●, 8501KFRD12●●●, 8501KPR12●●●, 8501KPRD12●●●, 8501KUR12●●●, 8501KURD12●●●	
			8501KFR13●●●, 8501KFRD13●●●, 8501KPR13●●●, 8501KPRD13●●●, 8501KUR13●●●, 8501KURD13●●●	
<b>Number and type of contacts</b>			2 C/O	
<b>Contact materials</b>			AgNi	
<b>Conventional thermal current (Ith)</b>	For ambient temperature ≤ 55°C	A	10	
<b>Rated operational current</b>	Conforming to IEC in utilization categories AC-1 and DC-1	NO	A	10 at 250 Vac 10 at 28 Vdc
		NC	A	5 at 250 Vac 5 at 28 Vdc
	Conforming to UL	Resistive	A	10 at 277 Vac (200k cycles) 10 at 30 Vdc (200k cycles)
		Motor	HP	1/3 at 120 Vac (6k cycles) 1 at 277 Vac (6k cycles)
		Pilot Duty		B300 (6k cycles)
<b>Minimum switching requirement</b>		mA	10 @ 17 Vdc; MCTF ≥ 10 million	
<b>Maximum switching voltage</b>		V	250 V (IEC) / 300 V (UL, CSA)	
<b>Switching capacity</b>	Maximum	Vac	VA	2500 VA (IEC), 2770 VA (UL)
		Vdc	W	280 W (IEC) / 300 W (UL)
Minimum		mW	170	
<b>Maximum operating rate</b> In operating cycles/hour	No-load		18000	
	Under load		1200	
<b>Utilization coefficient</b>			20%	
<b>Mechanical durability</b>	Cycles		5,000,000	
<b>Electrical durability</b> Operating cycles	Resistive load		100,000 (unless otherwise specified)	
	Inductive load		See curve below	

**Electrical durability of contacts** Resistive load Vac  
Reduction coefficient for inductive load Vac  
(depending on power factor cos φ)



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

Coil Specifications									
Average consumption		<b>VA</b>	3						
		<b>W</b>	1.4						
Drop-out voltage threshold			≥ 0.15 U <sub>c</sub> (at minimum operating temperature)						
			≥ 0.1 U <sub>c</sub> (at minimum operating temperature)						
Response time	Operate time	<b>ms</b>	20 max (at 100% coil voltage)						
	Release time	<b>ms</b>	20 max						
Control circuit voltage U <sub>c</sub>		<b>V</b>	<b>12</b>	<b>24</b>	<b>48</b>	<b>110</b>	<b>120</b>	<b>240</b>	
Relay control voltage codes			<b>V51</b>	<b>V53</b>	<b>V56</b>	<b>V60</b>	–	–	
DC supply	Average resistance at 20 °C ± 15%	<b>Ω</b>	120	470	1800	7300	–	–	
	Operating voltage limits	Min.	<b>Vac</b>	9.6	19.2	38.4	88	–	–
		Max.	<b>Vac</b>	13.2	26.4	52.8	121.0	–	–
Relay control voltage codes			–	<b>V14</b>	–	–	<b>V20</b>	<b>V24</b>	
AC supply	Average resistance at 20 °C ± 15%	<b>Ω</b>	–	72	–	–	1700	6800	
	Operating voltage limits	Min.	<b>Vac</b>	–	19.2	–	–	96	192
		Max.	<b>Vac</b>	–	26.4	–	–	132	264
Socket Specifications <sup>(1)</sup>									
Socket type			<b>8501NR51</b>	<b>8501NR61</b>	<b>8501NR52</b>	<b>8501NR62</b>	<b>8501NR82</b>		
Relay types used			<b>8501KPR12●●●, 8501KPDR12●●●</b>	<b>8501KPR13●●●, 8501KPDR13●●●</b>	<b>8501KPR12●●●, 8501KPDR12●●●</b>	<b>8501KPR13●●●, 8501KPDR13●●●</b>	<b>8501KUR13●●●, 8501KUDR13●●●</b>		
Contact terminal arrangement			Mixed		Separate				
Wire connection method			Screw clamp terminal						
Product certifications			cURus File E66924 CNN SWIV2, SWIV8; CSA; CE; RoHS Compliant						
Conforming to standards			IEC 61984, UL 508, CSA 22.2 No. 14						
Electrical Specifications									
Conventional thermal current (I <sub>th</sub> )		<b>A</b>	15 at 300 Vac (UL) 5 at 600 Vac (UL)		16 at 300 Vac (UL) 5 at 600 Vac (UL)		15 at 300 Vac (UL)		
Insulation Specifications									
Between adjacent output contacts		<b>V<sub>rms</sub></b>	2000		2500		2000		
Between input and output contacts		<b>V<sub>rms</sub></b>	2000		2500		2000		
Between contacts and DIN rail		<b>V<sub>rms</sub></b>	2000		2500		2000		
General Specifications									
Ambient air temperature around the device	Storage	<b>°C (F)</b>	– 40 to + 85 (– 40 to + 185)						
	Operation	<b>°C (F)</b>	– 40 to + 55 (– 40 to + 131)						
Degree of protection		Conforming to IEC/EN 60529	IP 20						
Cabling	Solid cable without cable end	1 conductor	0.5 to 2.5 mm <sup>2</sup> - AWG 20 to AWG 14						
		2 conductors	0.5 to 1.5 mm <sup>2</sup> - AWG 20 to AWG 16						
	Flexible cable with cable end	1 conductor	0.25 to 2.5 mm <sup>2</sup> - AWG 22 to AWG 14						
		2 conductors	0.25 to 1 mm <sup>2</sup> - AWG 22 to AWG 17						
Maximum tightening torque / Screw size		<b>Lb-ft (N·m)</b>	0.7 (1) / M3.5 screw						
Mounting			On 35 mm DIN rail / on panel						
Mounting on DIN rail			By red plastic clip						
Terminal referencing			IEC, NEMA						
Bus jumper			None						
Compatible hold down clip			None	8501NH52		8501NH82			
Compatible restraining strap			8501NH7	8501NH7		8501NH7			
Wire connection method		Screw clamp terminals							

(1) Sockets are rated as high as 600 V.

# Square D General Purpose Relays

## Class 8501K universal relays

References						
Pins	Control circuit voltage	Number and type of contacts - Thermal current (Ith)				
		2 C/O - 10 A	3 C/O - 10 A	Unit reference	Weight	
		Unit reference	Weight	Unit reference	Weight	
			kg/lb		kg/lb	
<b>Universal relays with standard clear cover (sold in lots of 1)</b>						
Type KP Cylindrical terminals Socket mount	12 Vdc	8501KPDR12V51	0.086/0.190	8501KPDR13V51	0.086/0.190	
	24 Vdc	8501KPDR12V53	0.086/0.190	8501KPDR13V53	0.086/0.190	
	48 Vdc	8501KPDR12V56	0.086/0.190	8501KPDR13V56	0.086/0.190	
	110 Vdc	8501KPDR12V60	0.086/0.190	8501KPDR13V60	0.086/0.190	
	24 Vac	8501KPR12V14	0.086/0.190	8501KPR13V14	0.086/0.190	
	120 Vac	8501KPR12V20	0.086/0.190	8501KPR13V20	0.086/0.190	
Type KU Flat (Faston type) terminals Socket mount	240 Vac	8501KPR12V24	0.086/0.190	8501KPR13V24	0.086/0.190	
	12 Vdc	8501KUDR12V51	0.086/0.190	8501KUDR13V51	0.086/0.190	
	24 Vdc	8501KUDR12V53	0.086/0.190	8501KUDR13V53	0.086/0.190	
	48 Vdc	8501KUDR12V56	0.086/0.190	8501KUDR13V56	0.086/0.190	
	110 Vdc	8501KUDR12V60	0.086/0.190	8501KUDR13V60	0.086/0.190	
	24 Vac	8501KUR12V14	0.086/0.190	8501KUR13V14	0.086/0.190	
Universal relays with flange mount cover (sold in lots of 1)	120 Vac	8501KUR12V20	0.086/0.190	8501KUR13V20	0.086/0.190	
	240 Vac	8501KUR12V24	0.086/0.190	8501KUR13V24	0.086/0.190	
	12 Vdc	8501KFDR12V51	0.086/0.190	8501KFDR13V51	0.086/0.190	
	24 Vdc	8501KFDR12V53	0.086/0.190	8501KFDR13V53	0.086/0.190	
	48 Vdc	8501KFDR12V56	0.086/0.190	8501KFDR13V56	0.086/0.190	
	110 Vdc	8501KFDR12V60	0.086/0.190	8501KFDR13V60	0.086/0.190	
Universal relays with standard clear cover and LED (sold in lots of 1)	24 Vac	8501KFR12V14	0.086/0.190	8501KFR13V14	0.086/0.190	
	120 Vac	8501KFR12V20	0.086/0.190	8501KFR13V20	0.086/0.190	
	240 Vac	8501KFR12V24	0.086/0.190	8501KFR13V24	0.086/0.190	
	Type KP Cylindrical terminals	12 Vdc	8501KPDR12P14V51	0.086/0.190	8501KPDR13P14V51	0.086/0.190
	24 Vdc	8501KPDR12P14V53	0.086/0.190	8501KPDR13P14V53	0.086/0.190	
	48 Vdc	8501KPDR12P14V56	0.086/0.190	8501KPDR13P14V56	0.086/0.190	
Type KU Flat (Faston type) terminals	110 Vdc	8501KPDR12P14V60	0.086/0.190	8501KPDR13P14V60	0.086/0.190	
	24 Vac	8501KPR12P14V14	0.086/0.190	8501KPR13P14V14	0.086/0.190	
	120 Vac	8501KPR12P14V20	0.086/0.190	8501KPR13P14V20	0.086/0.190	
	240 Vac	8501KPR12P14V24	0.086/0.190	8501KPR13P14V24	0.086/0.190	
	12 Vdc	8501KUDR12P14V51	0.086/0.190	8501KUDR13P14V51	0.086/0.190	
	24 Vdc	8501KUDR12P14V53	0.086/0.190	8501KUDR13P14V53	0.086/0.190	
Type KU Flat (Faston type) terminals	48 Vdc	8501KUDR12P14V56	0.086/0.190	8501KUDR13P14V56	0.086/0.190	
	110 Vdc	8501KUDR12P14V60	0.086/0.190	8501KUDR13P14V60	0.086/0.190	
	24 Vac	8501KUR12P14V14	0.086/0.190	8501KUR13P14V14	0.086/0.190	
	120 Vac	8501KUR12P14V20	0.086/0.190	8501KUR13P14V20	0.086/0.190	
	240 Vac	8501KUR12P14V24	0.086/0.190	8501KUR13P14V24	0.086/0.190	



8501KPDR12V60



8501KPR13P14V20



8501KUDR12P14V60



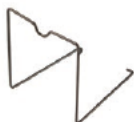
8501NR62 +  
Relay 8501KPR13P14V20



8501NR82 +  
Relay 8501KUDR12P14V60



8501NH7



8501NH52



8501NH82

### References (continued)

#### Sockets

Contact terminal arrangement	Connection	Relay type	Unit reference <sup>(1)</sup>	Sold in lots of	Weight kg/lb		
Mixed	Screw connector	8501KPR12●●● 8501KPDR12●●●	8501NR51	1	0.054/0.119		
		8501KPR12●●● 8501KPDR12●●●	8501NR51B	10	0.054/0.119		
		8501KPR13●●● 8501KPDR13●●●	8501NR61	1	0.054/0.119		
		8501KPR13●●● 8501KPDR13●●●	8501NR61B	10	0.054/0.119		
		Separate	Screw connector	8501KPR12●●● 8501KPDR12●●●	8501NR52	1	0.054/0.119
				8501KPR12●●● 8501KPDR12●●●	8501NR52B	10	0.054/0.119
8501KPR13●●● 8501KPDR13●●●	8501NR62			1	0.054/0.119		
8501KPR13●●● 8501KPDR13●●●	8501NR62B			10	0.054/0.120		
8501KUR12●●● 8501KUDR12●●●	8501NR82			1	0.054/0.121		
8501KUR12●●● 8501KUDR12●●●	8501NR82B			10	0.054/0.122		

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

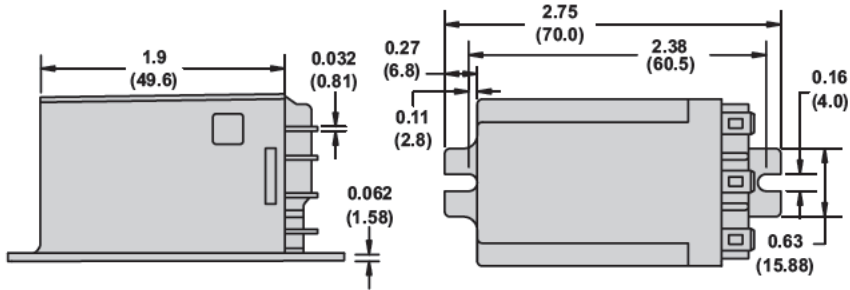
#### Accessories

Description	For use with	Unit reference	Sold in lots of	Weight kg/lb
Metal restraining strap	8501NR51 sockets	8501NH7	1	0.001/0.002
	8501NR52 sockets			
	8501NR62 sockets			
	8501NR82 sockets			
Metal hold-down clip	8501NR52 sockets 8501NR62 sockets	8501NH52	10	0.001/0.002
	8501NR82 sockets	8501NH82	10	0.001/0.002

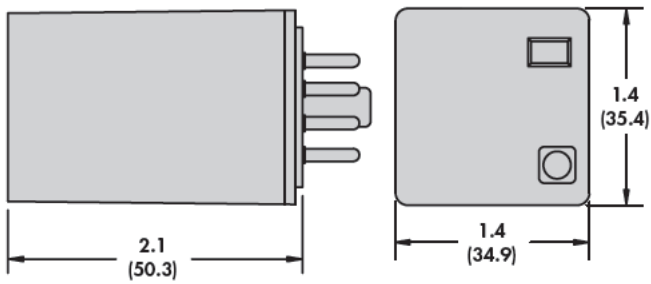
**Dimensions: inches (mm)**

Universal relays

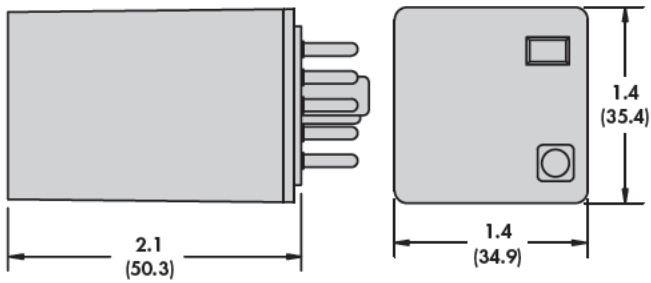
8501KF12●●● / 8501KF13●●●



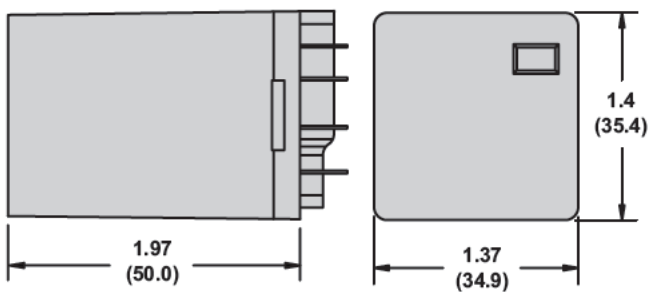
8501KP12●●●



8501KP13●●●



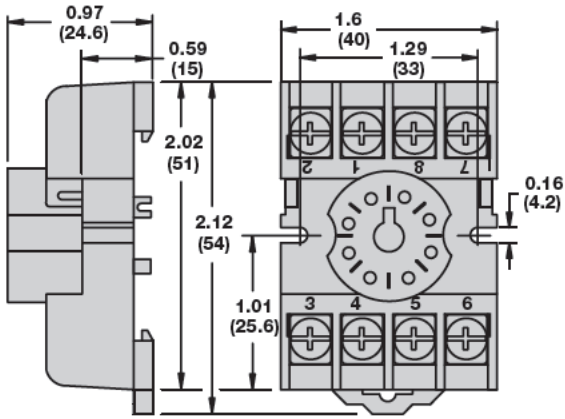
8501KU12●●● / 8501KU13●●●



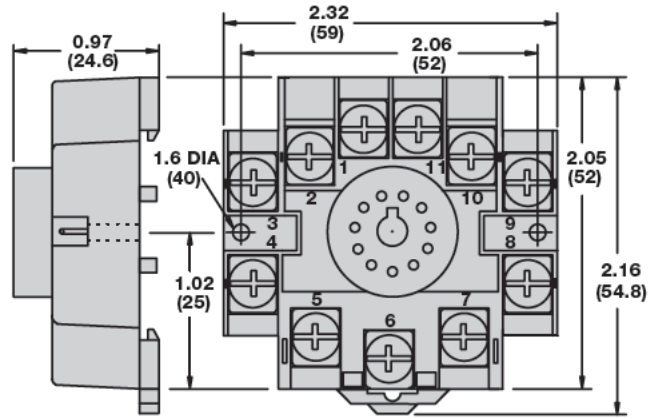
**Dimensions: inches (mm) (continued)**

**Sockets**

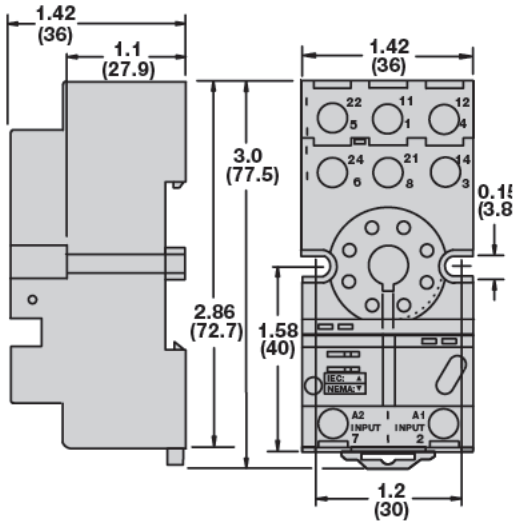
**8501NR51**



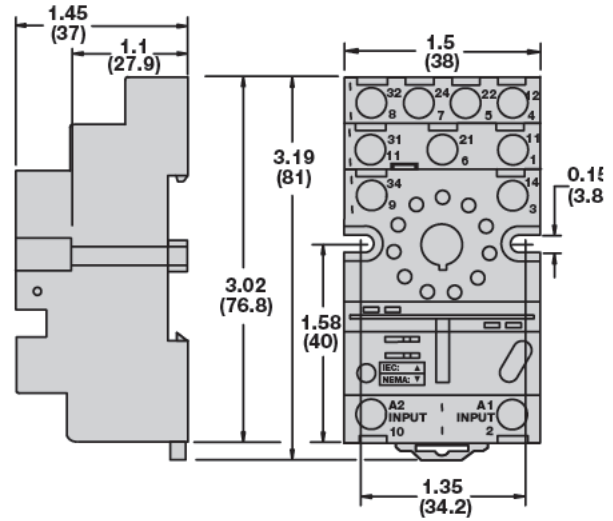
**8501NR61**



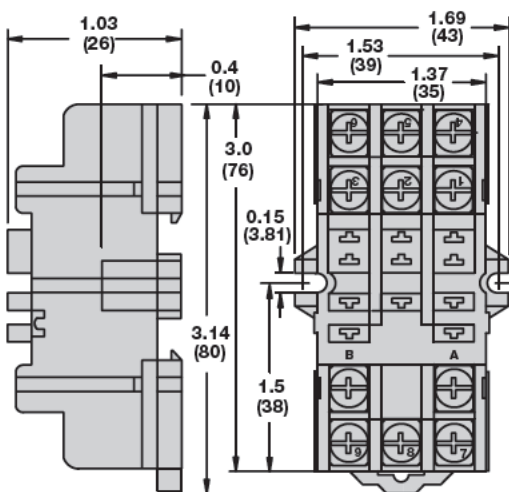
**8501NR52**



**8501NR62**



**8501NR82**





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Replaces 8501CT0301R07/08, 08/2008