

| LN SERIES

AC OUTPUT LOW NOISE SOLID STATE RELAYS

The LN Series of panel mounted Solid State Relays offer reliable back-to-back SCR switching up to 75 Amps at 528 VAC, coupled with a patented trigger circuit design which allows the SSR to switch resistive loads with minimal electromagnetic noise generated, ideal for use in commercial, residential and medical applications.

UL recognized and TUV certified, the LN series offers superior performance in applications that demand reliable switching and low emitted noise.



Features

- Rating up to 75A @48-528 VAC per channel
- Zero Voltage Turn-On Switching
- Conformance with IEC60947-4-3 Environment B for low voltage domestic, commercial and light industrial locations/installations
- Patented Low Noise trigger circuit
- IP20 touch-safe housing is available
- Built-in Input/Output over-voltage protection
- LED Input Status Indicator
- 3500 VAC Optical isolation
- EMC Compliant to level III

Applications

- Commercial ovens
- Professional cooking equipment
- Household appliances
- Medical equipment



PRODUCT SELECTION

输出电压	25 A	50 A	75 A
24-280 VAC	LND2425	LND2450	LND2475
48-528 VAC	LND4425	LND4450	LND4475



SPECIFICATIONS

输出电压 ⁽¹⁾

Description	LND24XX	LND44XX
工作电压(47-63Hz) [V _{RMS}]	24-280	48-528
Transient Overvoltage [Vpk] ⁽²⁾	500	800
Maximum Off-State Leakage Current @ Rated Voltage [mA _{RMS}]	1	1
Zero Crossing Level Maximum [Vpk]	20	
Minimum Off-State dV/dt @ Maximum Rated Voltage [V/μsec]	500	

Output ⁽¹⁾

Description	LNDXX25	LNDXX50	LNDXX75
负载电流, LC A IEC62314 @ U _e =480VAC, 40°C [A _{RMS}] ⁽³⁾	25	50	75
最小负载电流 [mA _{RMS}]	100		
Maximum 1 Cycle Surge Current (50/60Hz) [A _{pk}]	239/250	597/625	1145/1200
1 Second surge current (A _{pk} . Ta=25°C) 50/60 Hz	85	150	225
最大通态压降@ 额定电流[V _{rms}]	1.3	1.25	1.15
Maximum 1/2 Cycle I ² t for Fusing (50/60Hz) [A ² sec]	285/259	1770/1621	6560/5976
Thermal Resistance Junction to Case (R _{jc}) [°C/W]	0.8	0.45	0.27
Maximum Power Dissipation @Rated Current [W]	32.5	62.5	86.25
Recomended Heat Sink for Rated Current @40°C [°C/W]	2	1	0.7
Minimum Power Factor (at Maximum load)	0.7		

输入 ⁽¹⁾

Description	LND24XX	LND44XX
控制电压范围 [VDC] ⁽⁴⁾	4.8 - 32	
Maximum Reverse Voltage [VDC]	32	
最小开启电压[VDC]	4.8	
最小关断电压 [VDC]	1.1	
最小输入电流(导通时) [mA]	8	15
最大输入电流 [mA]	16	27
Nominal Input Impedance [Ω]	Current Regulated	
最大开启时间	1/2 周期	
最大关断时间	1/2 周期	

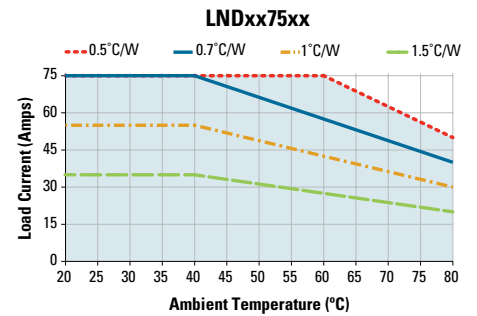
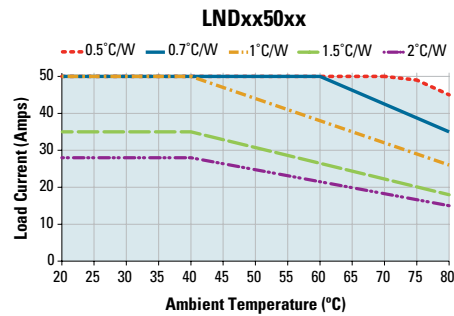
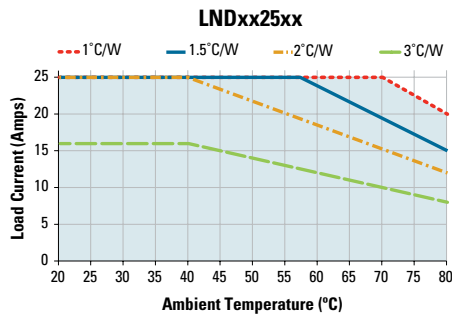
General ⁽¹⁾

Description	Parameters
Dielectric Strength, Input to Output (50/60Hz) [V _{RMS}]	3500
Dielectric Strength, Input/Output to Case (50/60Hz) [V _{RMS}]	4000
Minimum Insulation Resistance (@ 500 VDC) [Ω]	10 ⁹
Maximum Capacitance, Input/Output [pF]	12
工作温度[°C] ⁽⁵⁾	-40 to 80
Ambient Storage Temperature Range [°C] ⁽⁵⁾	-40 to 100
重量 (typical) [oz/g]	2.6/74.9

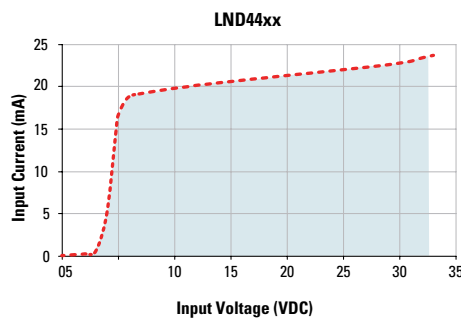
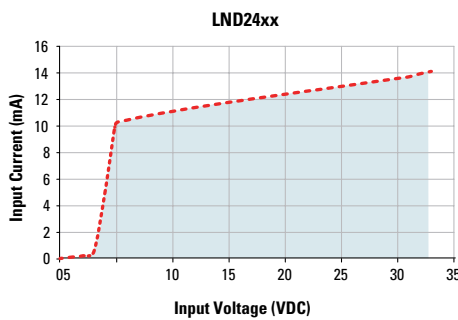
Housing Material	UL94 V-0
Baseplate Material	Aluminum
Input Terminal Screw Torque Range [lb-in/ Nm]	13-15/1.5-1.7
Load Terminal Screw Torque Range [lb-in/ Nm]	18-20/2-2.2
SSR Mounting Screw Torque Range [lb-in/ Nm]	18-20/2-2.3
Humidity per IEC60068-2-78	93% non-condensing
LED Input Status Indicator	Green
Overvoltage Category	III
Impulse Withstand Voltage according to IEC 60664-1	6kV



THERMAL DERATE INFORMATION

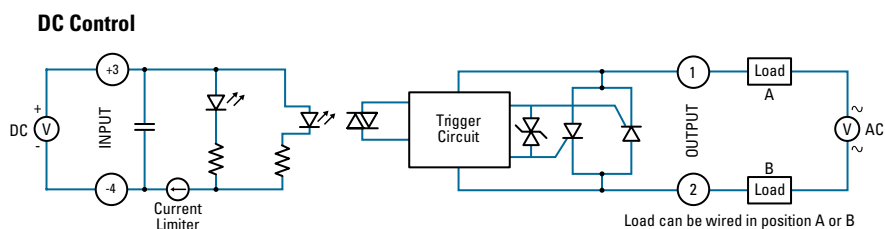
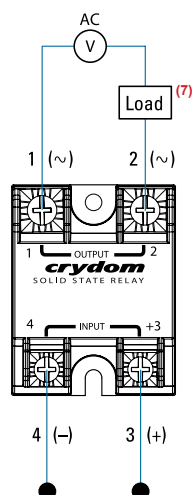


INPUT CURRENT INFORMATION⁽¹⁾



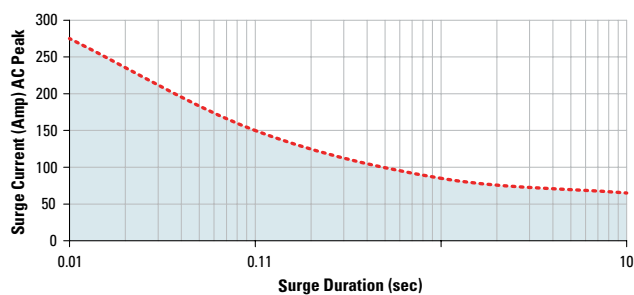


EQUIVALENT CIRCUIT BLOCK AND WIRING DIAGRAMS

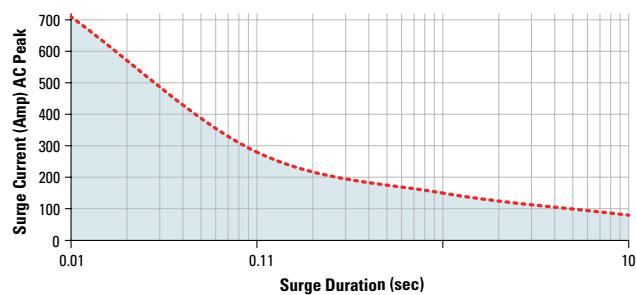


SURGE CURRENT INFORMATION

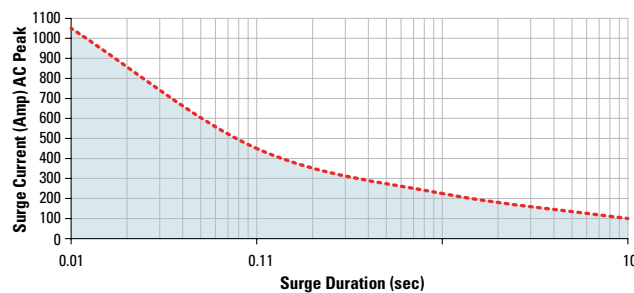
LNDxx25xx



LNDxx50xx



LNDxx75xx



--- Single Pulse ⁽⁶⁾



CONDUCTED RADIOFREQUENCY EMISSION TEST



GENERAL NOTES

- ⁽¹⁾ All parameters at 25°C unless otherwise specified.
- ⁽²⁾ Output will self trigger beyond 450-600 Vpk for LND24XX or 900-1200 Vpk for LND44XX models, not suitable for capacitive loads.
- ⁽³⁾ Heat sinking required, see derating curves.
- ⁽⁴⁾ Increase minimum voltage by 1 V for operations from -20 to -40°C.
- ⁽⁵⁾ No freezing or condensation allowed.
- ⁽⁶⁾ For single surge pulse $T_c=25^\circ\text{C}$; $T_j=125^\circ\text{C}$.
- ⁽⁷⁾ Load can be wired to either SSR output terminal 1 or 2.



INSTALLATION INSTRUCTIONS

Mounting on Heat Sinks

Select adequate heat sink (see thermal derating curves).

"Be sure to use a thermal pad or thermal compound (0.006 - 0.008 in layer thickness recommended) SSR and the selected heat sink. thickness recommended) between the SSR and the selected heat sink."

Before applying full torque tighten down both screws until they contact the baseplate. Then, tighten them to 20 lb-in (2.2 Nm).

For optimal thermal performance heat sink fins should be oriented vertically to promote natural convection airflow.

Mounting on Panels

Locate the panel section on which the SSR will be mounted. Panel mount surface must provide adequate heat sinking capability, uncoated, clean, flat (0.004 in/in recommended) and preferably aluminum.

Be sure to use a thermal pad or thermal compound (0.006 - 0.008 in layer thickness recommended) between the SSR and the panel.

SSR mounting slots have a diameter of 0.2 in (5.0 mm). Two screws are needed (not included) to mount the SSR onto panel. Choose screw length considering the mounting surface hole depth and that the SSR baseplate thickness is 0.125 in (3.2 mm).

Before applying full torque tighten down both screws until they contact the baseplate. Then, tighten them to 20 lb-in (2.2 Nm).

Recommended Torque and Wire Sizes			
Terminal	Max. Screw Torque [lb-in (Nm)]	Wire Size (Solid / Stranded)	Wire Pull-Out Strength (lb)[N]
Output	18-20 (2.0-2.2)	20 AWG (0.75 mm ²) [minimum]	25 [111]
		2 x 10 AWG (6 mm ²)	80 [355]
		2 x 8 AWG (10 mm ²) [maximum]	90 [400]
Input	13-15 (1.5-1.7)	28 AWG (0.09 mm ²) [minimum]	2.2 [9.8]
		2 x 12 AWG (4 mm ²) [maximum]	22 [98]

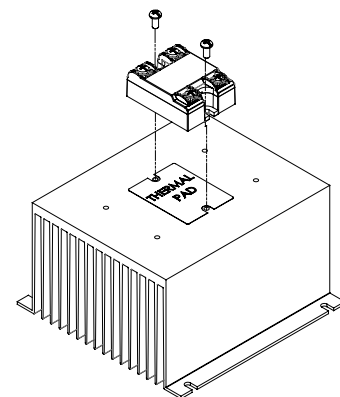
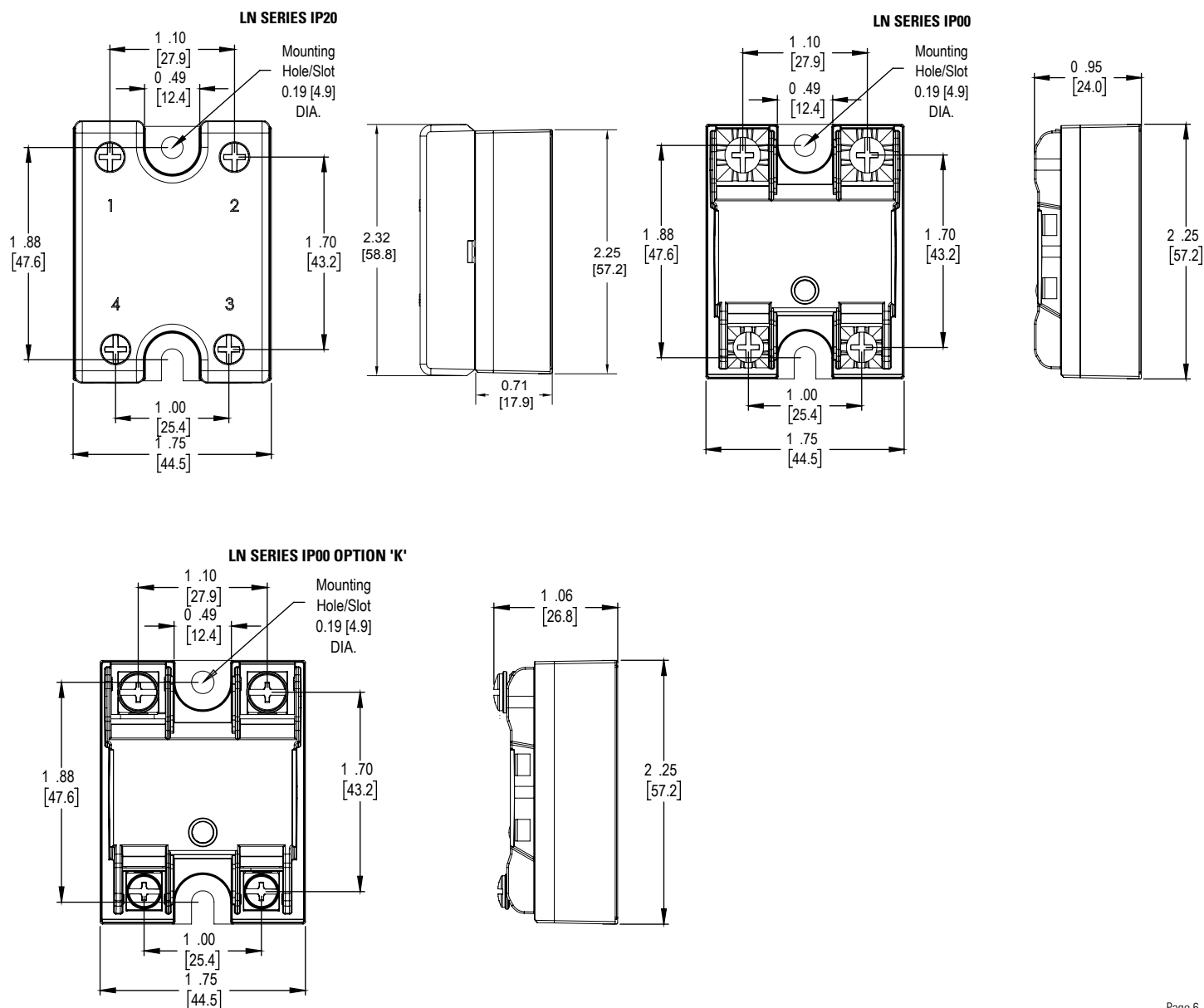


fig. 1 SSR mounted
on HS053 heat sink



MECHANICAL SPECIFICATIONS





ORDERING OPTIONS

Example : LND4475CH

Series LN - D - 44 - 75 - K - C - H

LN = Low Noise Solid State Relay

Control Voltage

D = 4.8-32 VDC

Operating Voltage

24 = 24-280 VAC

44 = 48-528 VAC

Rated Load Current

25 = 25A

50 = 50A

75 = 75A

Termination

Blank = Screw & Clamps

K = Installed standoffs with screws for PC Board mounting (IP00 only)

Protective Cover

Blank = Not included (IP00)

C = Included (IP20)

Thermal Pad

Blank = Not included

H = Included

— Required for valid part number

□ For options only and not required for valid part number



ACCESSORIES

Recommended Accessories

 Hardware Kit			 Thermal Pad	 Lug Terminal
	Heat Sink Part No.	Thermal Resistance [°C/W]		
HK1 HK4	HS501DR	5	HSP-1 HSP-2	TRM0 TRM6
	HS301 / HS301DR	3		
	HS251	2.5		
	HS201 / HS201DR	2		
	HS202 / HS202DR	2		
	HS172	1.7		
	HS151 / HS151DR	1.5		
	HS122 / HS122DR	1.2		
	HS103 / HS103DR	1		
	HS101	1		
	HS073	0.7		
	HS072	0.7		
	HS053	0.5		



AGENCY APPROVALS & CERTIFICATIONS

Approvals (Tested and Certified According To)	
 UL 508 and C22.2 No.14	 EN 62314

Conformances						Environmental	
Vibration Resistance IEC 60068-2-6	Shock Resistance IEC 60068-2-27	Electromagnetic Interference IEC 60947-4-3 (See Table 1)	Electromagnetic Compatibility IEC 61000-6-2 (See Table 1)	Resistances to heat and fire	CE	RoHS	50
Amplitude Range: 10-55 Hz, Displacement 0.75mm	Peak Acceleration: 15g, Duration 11ms.	Conducted Disturbances CISPR 11	IEC 61000-4-2 (ESD) IEC 61000-4-4 (Burst) IEC 61000-4-5 (Surge)	IEC 60335-1, Section 30	Directive 2006/95/ EC	Directive 2011/65/EU	GBT 26572- 2011

Table 1. Electromagnetic Compatibility / Electromagnetic Interference					
Generic Standard	Specific Standard	Test Specification Level			Performance
IEC 61000-6-2 Immunity for Industrial Environments	Electrostatic Discharge IEC 61000-4-2	8kV air discharge			Criterion A
		6kV contact discharge			Criterion A
	Fast transients (burst) IEC 61000-4-4	Output	2kV, 5kHz, 100kHz		Criterion B
		Input	1kV, 5kHz, 100kHz		Criterion B
	Surge IEC 61000-4-5	Output	1kV Line to Neutral		Criterion B
			2kV Line to Earth		Criterion B
			2kV Neutral to Earth		Criterion B
		Input	500V Line to Neutral		Criterion B
			1kV Line to Earth		Criterion B
			1kV Neutral to Earth		Criterion B
IEC 60947-4-3 Environment B Low voltage domestic, commercial and light industrial installations	Conducted Disturbances CISPR 11	Frequency, MHz	Quasi-peak, dB(uV)	Average, dB(uV)	Class B Group 1 & Group 2
		0.15 to 0.5	66 to 56	56 to 46	
		0.5 to 5	56	46	
		5 to 30	60	50	
		240VAC @40A & 440VAC @35A with Resistive Load			