

X10863

Solid State Relay (SSR)

LN3P100 Series

EMC Compliant Solid State Relays (SSR)



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KEY FEATURES:

- ✓ **EMC Compliant:** Meets EN50081-1, EN50082-2, EN61000-3-2, and EN60945
- ✓ **True Zero-Crossing Switching:** Clean and efficient on/off transitions
- ✓ **High Surge Withstanding:** 1,200A surge for 10ms, transient over-voltage 1,200Vpk
- ✓ **Low Power Loss:** Max 1.55V on-state voltage drop
- ✓ **Wide Control Voltage:** 3–28VDC with control status LED
- ✓ **Optical Isolation:** Input-output isolation at 2,500V
- ✓ **Flexible Mounting:** For chassis or heatsink

APPLICATIONS:

- 3-phase motors and industrial process heaters
- HVAC systems and air curtains
- UPS systems and power conditioning units
- Solenoids, lighting, and automation control
- Signalling and building services

The LN3P100 Series offers robust, EMC-compliant solid state relays designed for efficient switching of **3-phase AC loads** up to **530V RMS** and **65A**. These relays feature **true zero-crossing switching** using high-grade thyristors and MOSFET technology to ensure low EMI emissions, long-term reliability, and minimal power loss. Fully compliant with **EN50081-1**, **EN61000-6-3**, and **EN60945**, they eliminate the need for external EMC filters even at high load currents.

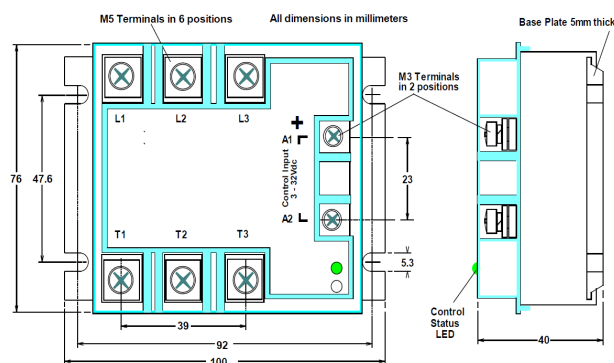
Built-in **TVS and varistor protection**, optical isolation, and an integrated **LED status indicator** make installation simple and operation secure, even in harsh industrial environments.

* **Patent No. 1130777B**

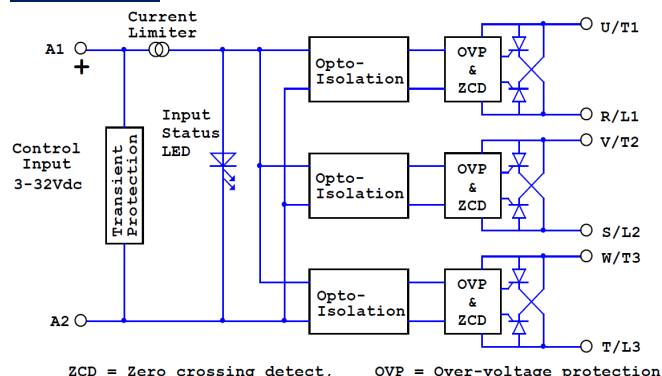
TECHNICAL SPECIFICATIONS

Switching Characteristics	
Switching Type	True zero-crossing
Output Switching	Back-to-back thyristor
Mounting	Chassis or heatsink
Input Circuit	
Control Voltage Range	3 – 28 VDC
Maximum Control Current	85 mA
Turn-Off Voltage (Min)	1 VDC
Turn-On Time (Max)	1 AC cycle
Turn-Off Time (Max)	1 AC cycle
Output Circuit	
Load Voltage Range	48 – 530 Vrms
Load Current Range	15 – 65 Arms (at 25°C)
Minimum Load Current	40 mA
Surge Current (10ms)	1,200 Apk
Transient Overvoltage	1,200 Vpk
On-State Voltage Drop (Max)	1.55 Vrms
Off-State Leakage Current	3 mA
General Characteristics	
Operating Temperature Range	–20°C to +85°C
Storage Temperature Range	–40°C to +110°C
Operating Frequency Range	50 – 400 Hz
Input–Output Capacitance	<130 pF
Isolation (Input–Output)	2,500 Vac
Isolation (Output–Baseplate)	2,500 Vac
Control Status Indicator	Green LED

Mechanical Specification



Block Diagram



YOU MUST READ THIS BEFORE INSTALLATION

ELECTRICAL SAFETY	INSTALLATION REQUIREMENTS	USER RESTRICTIONS	USAGE ENVIRONMENT	HOT SURFACE WARNING
WARNING: RISK OF ELECTRIC SHOCK Always consult the Installation & Maintenance Instructions before connecting this product to the power supply. WARNING: Disconnect Power Before Servicing Ensure the electrical supply is safely disconnected before connecting to any supply, load, or control terminals.	WARNING: Installation by Qualified Personnel Only This product must only be installed or fitted by a competent, qualified installer familiar with the relevant electrical standards and installation practices.	WARNING: Not for Use by Vulnerable Individuals This product is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they are supervised or instructed by a person responsible for their safety.	WARNING: Industrial Use Only This is an industrial-grade product and is not intended for household use.	WARNING: Hot Surfaces On certain models, surfaces marked with this symbol become hot during use. Avoid direct contact and follow all thermal safety precautions.

LN Series

EMC Compliant Solid State Relays (SSR)

LN Series Low Noise Solid State Relays

ELECTRICAL CHARACTERISTICS Typical at +45°C Ambient

Input Specification	
Control voltage	3.0 to 28Vdc
Max. reverse voltage	-32Vdc
Impedance (nominal)	1,500Ω
On voltage (Max)	+3.0Vdc
Off voltage (Min)	+1Vdc
Input current (typical @ 12Vdc)	11mA
(typical @ 5Vdc)	4mA
On threshold	2mA
Isolation, Input-Output	2,500Vac

Output Specification	120V, 1 phase			240V, 1 phase					440V, 1 phase				530V, 3-phase		
SSR Type: LN	3025	3040	3075	6025	6030	6040	6050	6075	10015	10025	10040	10050	3P10015	3P10030	3P10050
Operating Voltage V_T @ 47-63hz, V rms	24 to 120V			24 to 240V					48 to 530V				48 to 530V		
Max. Average Forward Current, I _T , (A _{VM}), Amps	25	40	75	25	30	40	50	75	15	25	40	50	15	30	50
Min. Load Current, mA rms	130	130	130	140	140	140	140	140	250	250	250	250	250	250	250
Transient Over-voltage, V_{pk} , V	500	500	500	600	600	600	600	600	900	900	900	900	1200	1200	1200
Max On-state Surge Current for 10mSec, A pk	300	300	300	520	520	520	520	520	520	520	520	520	520	520	520
Max. On-state volt drop @ rated current	1.55V	1.55V	1.55V	1.55V	1.55V	1.55V	1.55V	1.55V	1.35V	1.35V	1.35V	1.35V			
Max. Off-state leakage current @ rated voltage	3mA	3mA	3mA	3mA	3mA	3mA	3mA	3mA	5.5mA	5.5mA	5.5mA	5.5mA			
Max I ² t at 45°C (t = 10mS), A ² s	1310	1310	1310	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350	1350
Internal over-voltage protection	-	-		-	-	-	-	-					TVS & VDR		
Input status LED													Green LED		
Max. Turn-On time	1 cycle maximum														
Max. Turn-Off time	1 cycle maximum														
Operational Temperature range	-20 to +85°C														
Storage Temperature range	-40 to +110°														
Operating frequency range	50 to 400Hz														
Input – Output Capacitance	<130pF														
Case Material	Flame Retardant to UL94V-0														
Conducted Emission	Within EN55022 Class B Quasi-Peak and Average Emission Limits at 80 amps rms, (peak noise below 60dbuV)														
	UL Certification numbers, (single phase relays only): UL-US-2013894-0 and UL-CA-2011013-0														

RECOMMENDATIONS

FUSING

It is recommended to use semiconductor (fast acting) type fuses or circuit breakers (Semiconductor - MCB) for unit protection. On initial switch on some loads may need an increased Factor of Safety (F of S) for unit and/or device protection. See SRA datasheet for information.

DOCUMENTS

Other documents available on request, which may be appropriate for your application:

Code	Identity	Description
X10213	ITA	Interaction: Uses for phase angle and for burst fire control
X10255	SRA	Safety Requirements: Addressing the Low Voltage Directive (LVD) including, Thermal Data/Cooling, Live Parts Warning, Earthing Requirements and Fusing Recommendations

It is recommended that installation and maintenance of this equipment should be done with reference to the current edition of the I.E.T. regulations (BS7671) by suitably qualified/trained personnel. The regulations contain important requirements regarding the safety of electrical equipment. For International standards refer STANDARDS on D of C.

PRODUCT CODE AND RELATED PRODUCT CODE

Product Code	Product Description
A-LN3P10015	SSR-15A-530V LN3P10015 – 3-phase, 3 to 28Vdc control
A-LN3P10025	SSR-25A-530V LN3P10025 – 3-phase, 3 to 28Vdc control
A-LN3P10050	SSR-50A-530V LN3P10050 – 3-phase, 3 to 28Vdc control