LPN-OVP (Rev 1)

Over Voltage Protection Unit for Instrument Signals

DESCRIPTION.

This over voltage protection unit is characterized by its high level of protection, concentrated in a compact space. The LPN-OVP (Rev 1) is suitable for installing in the narrowest of places, making it ideal for automated process industrial and building service systems.

The circuit design is simple but very effective. Gas discharge tubes provide the first stage protection and can discharge up to 5000A when exposed to a $8x20\mu s$ waveform. Transient voltage suppressors provide the second stage protection, and typically operate within 5ns, and can discharge 600W when exposed to a $10x1000\mu s$ waveform.

For Maximum protection, an LPN-OVP (Rev 1) should be used at each end of a field cable to protect process control equipment at both ends.



FEATURES.

Two stage protection:

- Gas discharge tubes provide the first stage.
- Transient voltage suppressors provide the second stage.
- Leakage current: 10µA at 24Vdc
 Transient cut-off voltage: 33Vdc

ODERING INFORMATION.

LPN-OVP (Rev 1) Standard DIN Rail Mount

SPECIFICATIONS.

Operating humidity 5~85% RH max. EMC compliances Emissions EN55022-A. Immunity EN 50082-1, <1% effect FSO typical. Leakage current 10μA at 24Vdc.		
10x1000μs DC spark voltage 60~90V at 100V/s. Impulse spark over voltage <600V at 1kV/μs. Transient voltage suppressors 10x1000μs 600W. Response time 5ns from 0~41V. Stand off voltage 33V typical. Operating temperature 0~60°C. Storage temperature -20~80°C. Operating humidity 5~85% RH max. EMC compliances Emissions EN55022-A. Immunity EN 50082-1, <1% effect FSO typical. Leakage current 10μA at 24Vdc. Added line resistance 25Ω for the loop (12.5Ω per side).	Gas discharge tubes	
DC spark voltage 60~90V at 100V/s. Impulse spark over voltage <600V at 1kV/μs. Transient voltage suppressors 10x1000μs 600W. Response time <5ns from 0~41V. Stand off voltage 33V typical. Operating temperature 0~60°C. Storage temperature -20~80°C. Operating humidity 5~85% RH max. EMC compliances Emissions EN55022-A. Immunity EN 50082-1, <1% effect FSO typical. Leakage current 10μA at 24Vdc. Added line resistance 25Ω for the loop (12.5Ω per side).	8x20μs	5000A.
Impulse spark over voltage <600V at 1kV/μs. Transient voltage suppressors 10x1000μs 600W. Response time <5ns from 0~41V. Stand off voltage 33V typical. Operating temperature 0~60°C. Storage temperature -20~80°C. Operating humidity 5~85% RH max. EMC compliances Emissions EN55022-A. Immunity EN 50082-1, <1% effect FSO typical. Leakage current 10μA at 24Vdc. Added line resistance 25Ω for the loop (12.5Ω per side).	10x1000μs	10A.
Transient voltage suppressors $10x1000\mu s \qquad 600W.$ Response time $<5ns \text{ from } 041V.$ Stand off voltage $33V \text{ typical.}$ Operating temperature $060C.$ Storage temperature $-2080C.$ Operating humidity $585RH \text{ max.}$ EMC compliances $Emissions \qquad EN55022A.$ $Immunity \qquad EN 500821, <1\% \text{ effect FSO typical.}$ Leakage current $10\mu A \text{ at } 24Vdc.$ Added line resistance $25\Omega \text{ for the loop } (12.5\Omega \text{ per side}).$	DC spark voltage	60~90V at 100V/s.
10x1000μs600W.Response time <5 ns from 0~41V.Stand off voltage 33 V typical.Operating temperature $0~60$ °C.Storage temperature $-20~80$ °C.Operating humidity $5~85$ % RH max.EMC compliancesEmissionsEmissionsEN55022-A.ImmunityEN 50082-1, <1% effect FSO typical.	Impulse spark over voltage	<600V at 1kV/μs.
Response time <5 ns from $0\sim41$ V. Stand off voltage 33 V typical. Operating temperature $0\sim60^{\circ}$ C. Storage temperature $-20\sim80^{\circ}$ C. Operating humidity $5\sim85\%$ RH max. EMC compliances Emissions EN55022-A. Immunity EN 50082-1, <1% effect FSO typical. Leakage current 10μ A at 24 Vdc. Added line resistance 25Ω for the loop (12.5Ω per side).	Transient voltage suppressors	
Stand off voltage 33V typical. Operating temperature 0~60°C. Storage temperature -20~80°C. Operating humidity 5~85% RH max. EMC compliances Emissions EN55022-A. Immunity EN 50082-1, <1% effect FSO typical. Leakage current 10μA at 24Vdc. Added line resistance 25Ω for the loop (12.5Ω per side).	10x1000μs	600W.
Operating temperature $0\sim60^{\circ}\text{C}$. Storage temperature $-20\sim80^{\circ}\text{C}$. Operating humidity $5\sim85\%$ RH max. EMC compliances Emissions EN55022-A. Immunity EN 50082-1, <1% effect FSO typical. Leakage current $10\mu\text{A}$ at 24Vdc. Added line resistance 25Ω for the loop (12.5 Ω per side).	Response time	<5ns from 0~41V.
Storage temperature $-20 \sim 80 ^{\circ}$ C. Operating humidity $5 \sim 85 \%$ RH max. EMC compliances Emissions EN55022-A. Immunity EN 50082-1, <1% effect FSO typical. Leakage current $10 \mu A$ at $24 V dc$. Added line resistance 25Ω for the loop (12.5Ω per side).	Stand off voltage	33V typical.
Operating humidity $5\sim85\%$ RH max. EMC compliances Emissions EN55022-A. Immunity EN 50082-1, <1% effect FSO typical. Leakage current $10\mu A$ at $24Vdc$. Added line resistance 25Ω for the loop (12.5 Ω per side).	Operating temperature	0~60°C.
EMC compliances Emissions EN55022-A. Immunity EN 50082-1, <1% effect FSO typical. Leakage current $10\mu A$ at 24Vdc. Added line resistance 25Ω for the loop (12.5 Ω per side).	Storage temperature	-20~80°C.
Emissions EN55022-A. Immunity EN 50082-1, <1% effect FSO typical. Leakage current $10\mu A$ at $24Vdc$. Added line resistance 25Ω for the loop (12.5 Ω per side).	Operating humidity	5~85% RH max.
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Leakage current $10\mu A$ at $24Vdc$. Added line resistance 25Ω for the loop (12.5 Ω per side).	Emissions	EN55022-A.
Added line resistance 25Ω for the loop (12.5 Ω per side).	Immunity	EN 50082-1, <1% effect FSO typical.
, ,	Leakage current	10μA at 24Vdc.
Dimensions 79 x 20 x 68mm (H x W x D).	Added line resistance	25Ω for the loop (12.5Ω per side).
	Dimensions	79 x 20 x 68mm (H x W x D).

Product Liability. This information describes our products. It does not constitute guaranteed properties and is not intended to affirm the suitability of a product for a particular application. Due to ongoing research and development, designs, specifications, and documentation are subject to change without notification. Regrettably, omissions and exceptions cannot be completely ruled out. No liability will be accepted for errors, omissions or amendments to this specification. Technical data are always specified by their average values and are based on Standard Calibration Units at 25°C, unless otherwise specified. Each product is subject to the 'Conditions of Sale'.

Warning: These products are not designed for use in, and should not be used for patient connected applications. In any critical installation an independent fail-safe back-up system must always be implemented.

The Proper Installation & Maintenance of LPN-OVP (Rev 1).

MOUNTING.

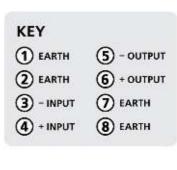
- 1) Mount in a clean environment in an electrical cabinet on DIN or EN rail.
- 2) Do not subject to vibration or excess temperature or humidity variations.
- 3) Avoid mounting in cabinets with power control equipment.
- 4) To maintain compliance with the EMC Directives the LPN-OVP (Rev 1) is to be mounted in a fully enclosed steel cabinet. The cabinet must be properly earthed, with appropriate input / output entry points, filtering, and cabling.

WIRING.

- All cables should be good quality overall screened INSTRUMENTATION CABLE with the screen earthed at one end only.
- 2) Signal cables should be laid a minimum distance of 300mm from any power cables.
- 3) For 2 wire current loops Austral Standard Cables B5102ES is recommended. For three wire transmitters and RTD's Austral Standard Cables B5103ES is recommended.
- 4) Refer to diagram for connection information.

Note: A close proximity or direct lightning strike may compromise the OVP protection.



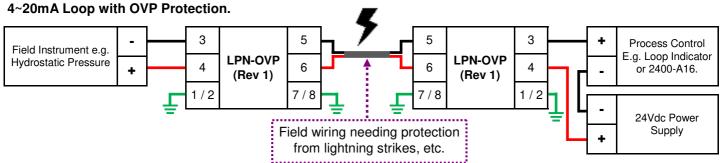


NOTE

USE INSTRUMENTATION CABLE
WITH SCREEN EARTH AT ONE
END ONLY
MIN 300MM DISTANCE
REQUIRED BETWEEN SIGNAL

AND POWER CABLES

CONNECTION EXAMPLE.



Note 1: Only one of terminals 1, 2, 7 or 8 need to be earthed.

Note 2: Added line resistance of 25Ω for the loop (12.5 Ω per side).

COMMISSIONING.

- Once all the above conditions have been carried out and the wiring checked apply power to the LPN-OVP (Rev 1) loop and allow five minutes for the loop to stabilize.
- 2) Take a low (approx. 10%) and a high (approx. 90%) reading of the value being measured on the field instrument, and ensure that this agrees with the value being indicated by the indicator, data Logger, PLC, etc. for that field instrument.

MAINTENANCE.

Repeat 2) of commissioning.
 Do it regularly - at least once every twelve months.



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