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 8x20µs waveform. Transient voltage suppressors provide the second stage protection, and typically operate within 5ns, and can discharge 600W when exposed to a 10x1000µs 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.

Gas discharge tubes	
8x20µs	5000A.
10x1000µs	10A.
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).
Dimensions	79 x 20 x 68mm (H x W x D).

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.

1) 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.

KEY

1 EARTH	5 – OUTPUT
2 EARTH	6 + OUTPUT
3 – INPUT	7 EARTH
4 + INPUT	8 EARTH

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

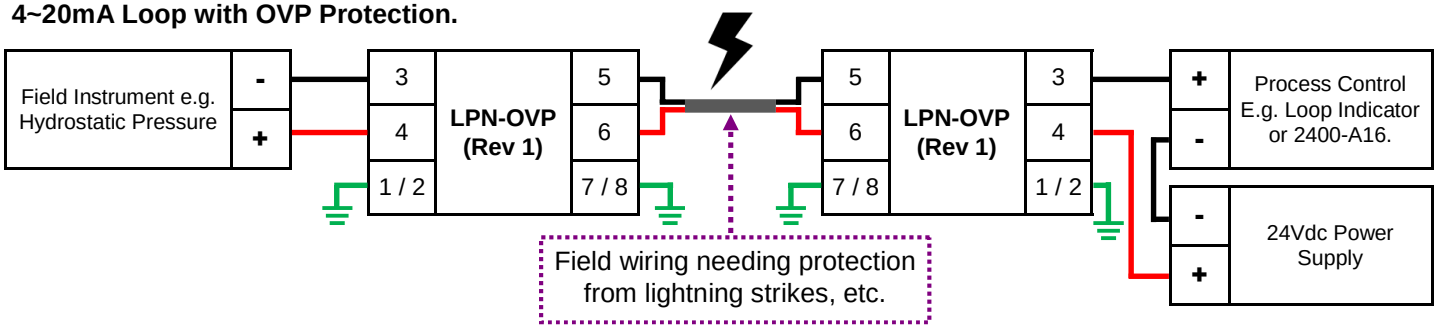
NOTE

USE INSTRUMENTATION CABLE WITH SCREEN EARTH AT ONE END ONLY

MIN 300MM DISTANCE REQUIRED BETWEEN SIGNAL AND POWER CABLES

CONNECTION EXAMPLE.

4~20mA Loop with OVP Protection.



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 (12.5Ω per side).

COMMISSIONING.

1) 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.

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

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