

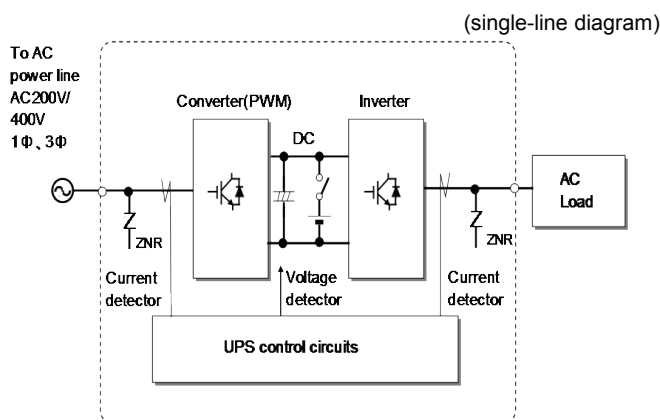
ZNR Application Note

UPS (Uninterrupted Power Supply)

1. Industry Segments:

Field of Industry: Power Supply
Product: AC/DC Converter, DC/AC Inverter

2. Transient Surge Voltage and its Protection by Using ZNR:



Aim of ZNR Application:

Protection of AC/DC converter, DC/AC inverter and their controller in UPS against lightning surge

Problems with Surge Voltage:

Kind of surge voltage: Induced lightning surge voltage
Path of surge voltage: AC power line
Failed parts or circuits: Damage of power semiconductors in the converter/inverter and controller

How to Apply ZNR to Circuit: (Blue Part Numbers Indicate NEW “E-Series”)

Connection: AC power line(line-line, line-ground)

ZNR part number selection (representative):

For AC200V system: Line-line [ERZE14A431](#), [ERZE14A471](#), Line-ground: ERZV20D182

For heavy duty : Line-line ERZC32EK431, ERZC32EK471, Line-ground: ERZC32EK911(2pcs in series)

Precaution in surge protection designing (Parameters to be considered for ZNR selection):

Surge voltage test (Voltage, current, waveform and their repetition) should be conducted, if required.

Voltage of the insulation test and withstanding test must be taken into account for ZNR model selection V1mA (line-ground)

Insulation coordination between clamping voltage and withstand voltage of power semiconductors

3. Relevant Technical Information and References:

IEC6204-2, JISC4411-2 Uninterruptible power systems (UPS)-Part 2:Electromagnetic compatibility (EMC) requirements

IEC6204-3, JISC4411-3 Uninterruptible power systems(UPS)-Part3 : Method of specifying the performance and test requirements

4. More Information:

Home page for up-to-date information: <http://na.industrial.panasonic.com/products/circuit-thermal-protection/circuit-protection/znr-transientsurge-absorbers>