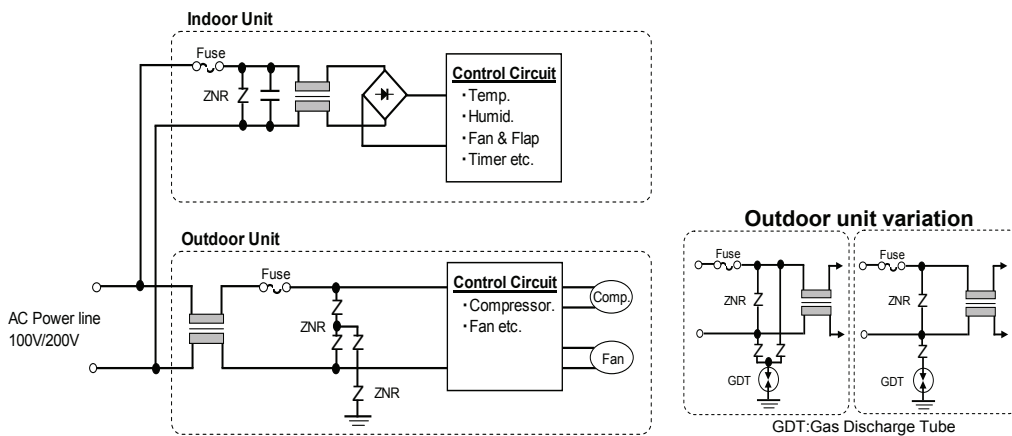


## ZNR Application Note Air Conditioner

### 1. Industry Segments:

Field of Industry: Electric Home Appliance (White goods)  
 Product: Air Conditioner (Indoor Unit, Outdoor Unit)

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



#### Aim of ZNR Application:

Protection of power circuits of home appliance against lightning surges

#### Problems with Surge Voltage:

- Kind of surge voltage: Induced lightning surge voltage
- Path of surge voltage: AC power line
- Failed parts or circuits: Breakdown of power circuits & control circuits or malfunction

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

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

##### ZNR part number selection (representative):

For AC100V/200V : Indoor (line-line): ERZE07A471, ERZE08A471, ERZE10A471, ERZE11A471, Outdoor(line-line): ERZE07A471, ERZE08A471, ERZE10A471, ERZE11A471, Outdoor(line-ground): ERZV10D182

For AC200V outdoor unit variation: Line-line, line-ground(GDT in series): ERZE10A621 or 681, ERZE11A621 or 681 GDT spark over voltage in DC=3,6kV

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

ZNR should be connected at load side of the fuse(over current protector) with a suitable current rating.

Model(V1mA) of ZNR or GDT should be selected to clear the voltage at insulation test and withstand voltage test for the air conditioner as well as max. AC line voltage.

### 3. Relevant Technical Information and References:

JISC60664, IEC60664 Insulation coordination for equipment within low-voltage systems-Part 1:Principles, requirements and tests

### 4. More Information:

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