



1. Different Types of EMS

The noise which is applied to power supply coming from outside are shown as below.

Electrostatic discharge immunity

Impulse noise, Electrical fast transient/burst immunity

Surge immunity

Conducted Disturbances, induced by radio-frequency fields

Radiated, radio-frequency, electromagnetic field immunity

2. Countermeasures for EMS

(1) Countermeasures in power supply

Basically, countermeasures for EMI could be effective for noise immunity as well.

Therefore, various countermeasures for EMI play key role for noise immunity.

The following countermeasures are taken in power supply.

Built-in input filter.

Optimized FG line in design of printed-circuit board and chassis.

Use noise suppression devices, such as ferrite core, differential-mode choke.

(2) Countermeasures in user's system

EMC directive is generally applied to the end use product. Therefore, the following countermeasures should be taken to the whole system as well as power supply.

External filter / Surge absorber

Setting a surge absorber or a filter for tolerating impulse noise at AC terminal of the unit will be effective to reduce high-voltage noise.

* When EMI filter is used at input line and surge voltage is applied, there is possibility that input voltage jumps up due to the energy stored in choke coil of EMI filter.

Sufficient evaluation is required to choose suitable EMI filter with actual application.

Wiring of input line / output line

The input line and the output line should be separated to avoid spoiling an effect of noise filter.



Earthing wire

Earth potential is ideally stabilized potential. However, depending on the way of wiring, impedance will be increased and it may cause failure/malfunction of system due to conducted noise.

Earthing wire should be thick and short as possible.