

# Design Request Form

LIGHTNING PROTECTION INTERNATIONAL PTY LTD  
*Comprehensive Lightning and Surge Protection* ABN 11 099 190 897

- Direct Strike Protection
- Earthing Products & Solutions
- Surge & Transient Protection for Power, Data, Communications and RF Lines



## Substation Earthing Design Request Form

To: Lightning Protection International Pty Ltd, Hobart, Australia

Attention: Mr. James Temple

### Design Details

Date: \_\_\_\_\_

Country: \_\_\_\_\_

Client: \_\_\_\_\_

Contact Name: \_\_\_\_\_

Project: \_\_\_\_\_

Location: \_\_\_\_\_

Agent / Distributor: \_\_\_\_\_

### Substation-specific parameters

1. Substation size: \_\_\_\_\_ x \_\_\_\_\_ x \_\_\_\_\_

2. Maximum fault current: \_\_\_\_\_

3. Fault duration: \_\_\_\_\_

4. Any preference or restriction regarding conductor size and burial depth: \_\_\_\_\_

5. Depth and resistivity of the surface gravel layer: \_\_\_\_\_

6. Details regarding the perimeter fence:

Material: \_\_\_\_\_ Size: \_\_\_\_\_ Post Depth: \_\_\_\_\_ Spacing: \_\_\_\_\_

### Soil resistivity data

1. Soil model to be provided by client; OR

2. Can be modelled using Customised Software. The following data is required to undertake design;

i) Measurement method (Wenner, Unipolar, Schlumberger, Dipole-Dipole etc.)  
\_\_\_\_\_

ii) Any independent information regarding soil layers (uniform, horizontal, vertical etc.)  
\_\_\_\_\_

iii) Probe spacing (does not need to be uniform, but must be large enough to obtain deep layer information) \_\_\_\_\_

iv) Apparent resistance at each spacing \_\_\_\_\_

v) Current probe depth \_\_\_\_\_

vi) Potential probe depth \_\_\_\_\_

Test equipment \_\_\_\_\_ Frequency of measurement \_\_\_\_\_

*(Precautions must be taken to ensure the data is not adversely affected by power-frequency noise and other factors).*

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## Targets

1. What is the target resistance for earthing system? \_\_\_\_\_
2. Permissible touch voltage - any preference for IEEE or IEC standards? \_\_\_\_\_
3. Permissible step voltage - any preference for IEEE or IEC standards? \_\_\_\_\_
4. Is there a desired maximum ground potential rise? \_\_\_\_\_

## Miscellaneous

1. Will the earthing system be used for lightning protection as well as power frequency faults?  
\_\_\_\_\_
2. Please identify and describe any buried and overhead metallic structures on the site.  
\_\_\_\_\_
3. Any special requirements, limitations, restrictions etc.  
\_\_\_\_\_

Example of a earthing system design and bill of material are available upon request.

Standard earthing system design (power frequencies) for substation varies from US\$500-US\$1,000.



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