CONCEPT VERSION

Manual

Selectivity in public charging stations 2026

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Introduction & Principles

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This manual presents a practical and safe approach to test and ensure selectivity in the case of charging stations with integrated grid connection.

The approach distinguishes between different protective devices, such as circuit breakers and fuses, and takes into account the role of **software-based measures** that regulate the charging capacity. As a result, the likelihood of unnecessary tripping of the main protection is significantly reduced, while maximizing the utilization of the grid connection.

Suppliers of charging stations are asked to provide the values and characteristics of each combination of customer protective devices and DSO protective devices. This forms the basis for safe, reliable and efficient charging facilities.

This manual serves as a guideline to substantiate selectivity in a transparent, reproducible and compliant manner, taking an important step towards optimal use of the electricity grid and a future-proof charging infrastructure.

Principles:

- **Physical** customer protective devices must be present in every situation.
- If software selectivity is used, this is indicated by a **sticker**.
- Justification is provided for both internal groups and outgoing groups (**secondary charging stations**). The same requirements apply to both.

What do I need to provide?

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The value and characteristic of each applied combination of customer protection and main protection. Only the combinations listed below are permitted. When using software-based selectivity, substantiate this by showing the settings of the charging installation.

Connection capacity	Protection device DSO	Value and Characteristic	Customer protection	Value and Characteristic	Software selectivity
3 x 25A	Cartridge fuse 10,3 x 38 mm or Centered tag fuse NH000	25A – gG	Miniature circuit breaker Centered tag fuse	16A – B 16A – gG	N/A
			Miniature circuit breaker Centered tag fuse	20A – B 20A – gG	Required. Trips at ≥30 A within 4 seconds.
3 x 35A	Centered tag fuse NH000	35A – gG	Miniature circuit breaker Centered tag fuse	t/m 20A – B t/m 20A – gG	Not permitted
3 x 50A	Centered tag fuse NH000	50A – gG	Miniature circuit breaker Centered tag fuse	t/m 32A – B t/m 32A – gG	Not permitted
3 x 63A	Centered tag fuse NH000	63A – gG	Miniature circuit breaker Centered tag fuse	t/m 32A – B t/m 40A – gG	Not permitted
3 x 80A	Centered tag fuse NH000	80A – gG	Miniature circuit breaker Centered tag fuse	t/m 32A – B t/m 50A – gG	Not permitted
Exception Coteq: also applies 25A type C circuit breakers; Exception Rendo: does not allow software-based selectivity; Exception Enexis: also applies gFF characteristic.					

Load balancing distributes the available current across all internal and, where applicable, external sockets, ensuring that the total power remains within the agreed grid capacity. **Selectivity** concerns the overcurrent protection of an **individual socket** in relation to the main protection. Therefore, load balancing is not part of the substantiation for selectivity, whereas software-based measures per socket are.

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Attachments

Time-current diagram

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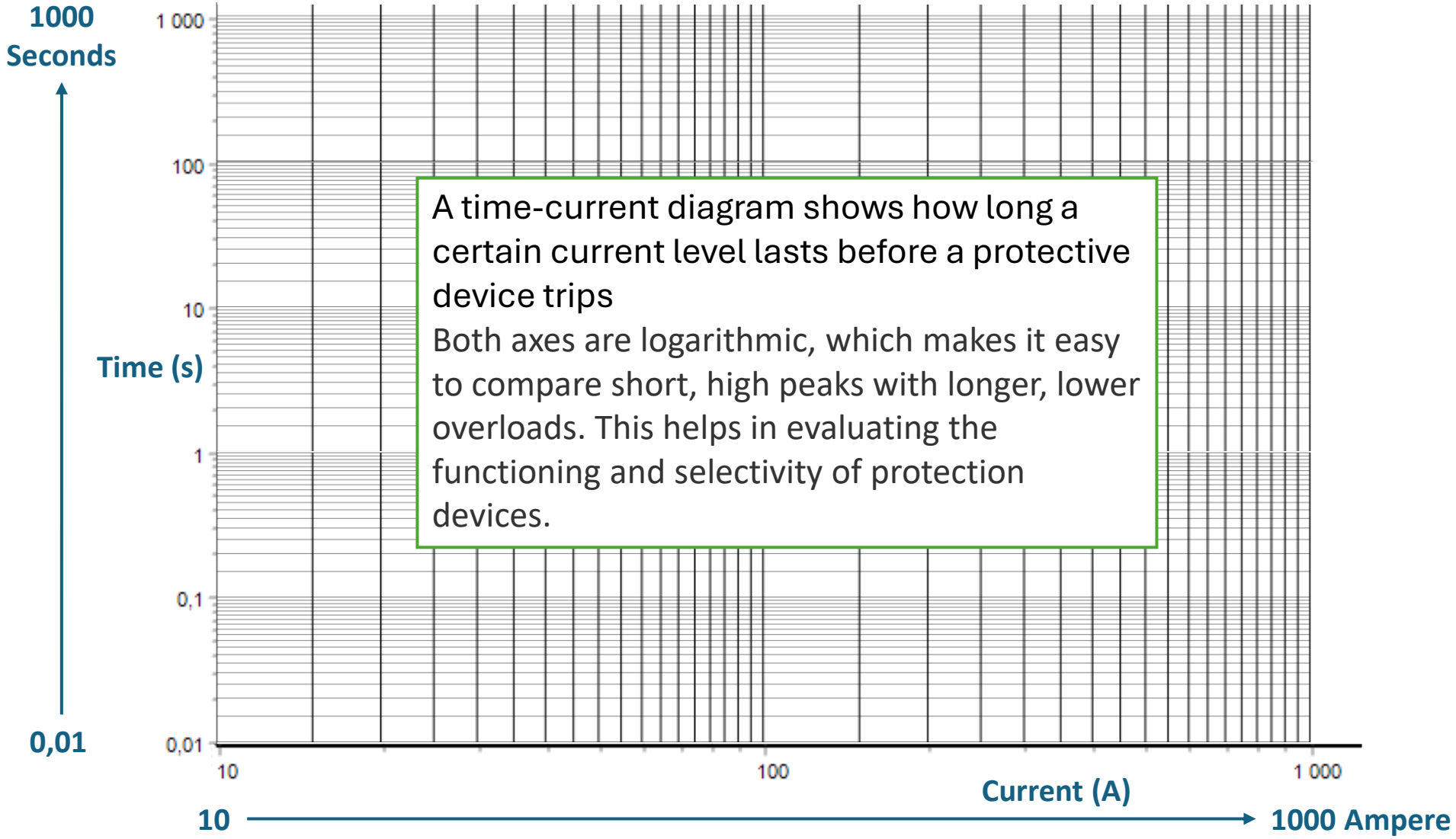

A time-current diagram shows how long a certain current level lasts before a protective device trips

Both axes are logarithmic, which makes it easy to compare short, high peaks with longer, lower overloads. This helps in evaluating the functioning and selectivity of protection devices.

Load-balancing

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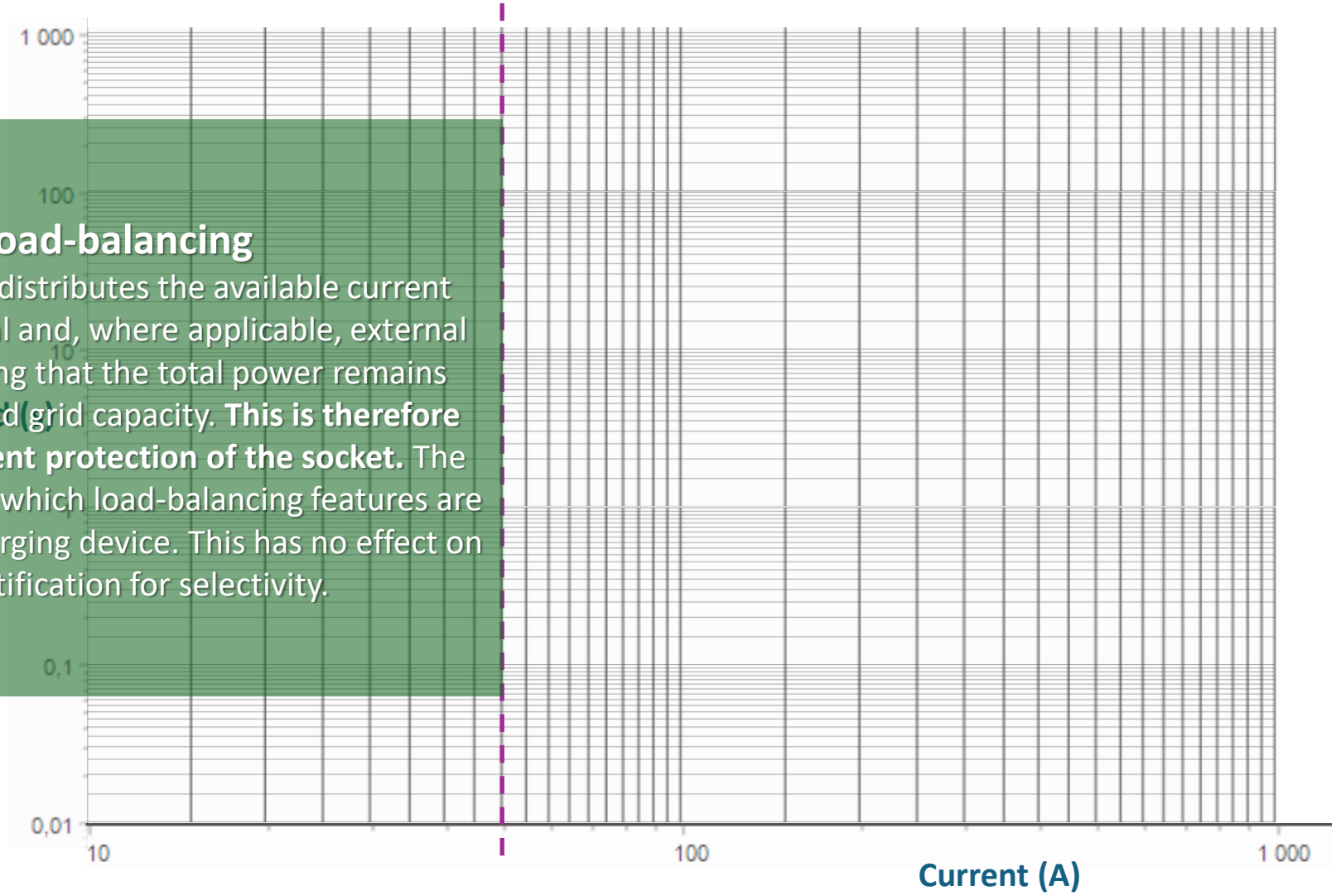

Load-balancing

Load balancing distributes the available current across all internal and, where applicable, external sockets, ensuring that the total power remains within the agreed grid capacity. **This is therefore not an overcurrent protection of the socket.** The supplier specifies which load-balancing features are applied in the charging device. This has no effect on the justification for selectivity.

Example of selective NH000 gG fuses

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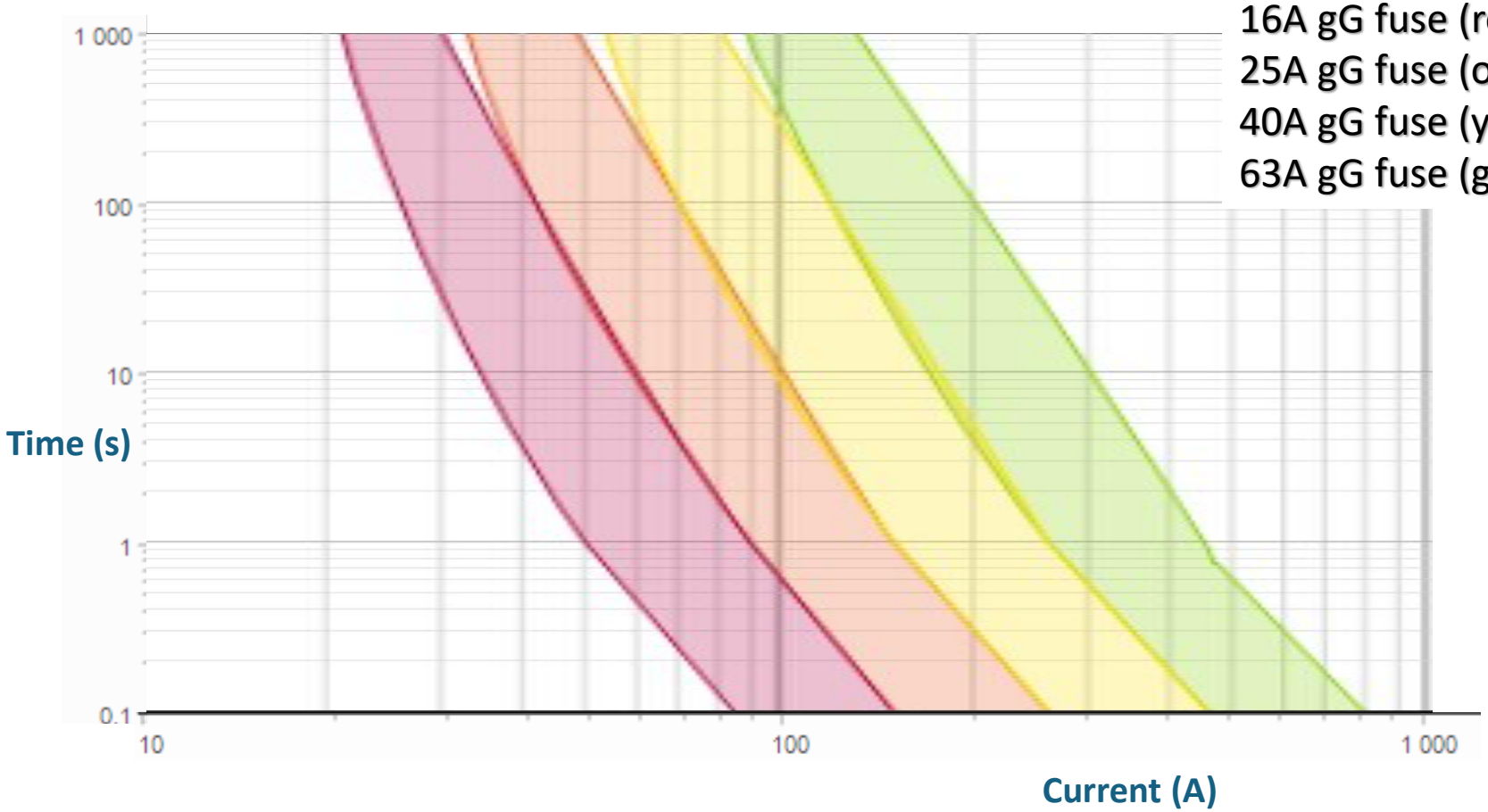
16A gG fuse (red)
25A gG fuse (orange)
40A gG fuse (yellow)
63A gG fuse (green)



Example of selective NH000 gG fuses

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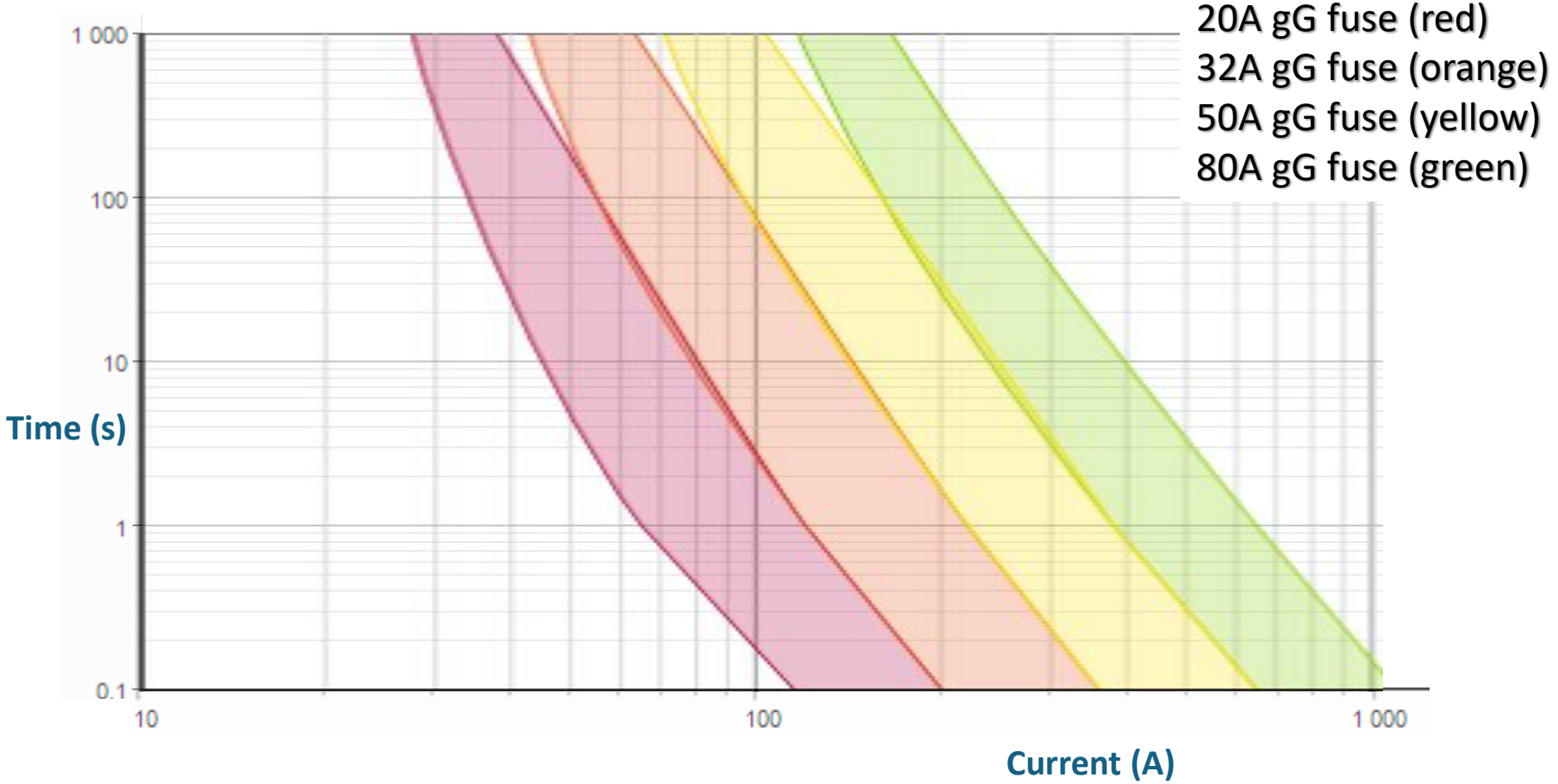

Example 50A grid connection

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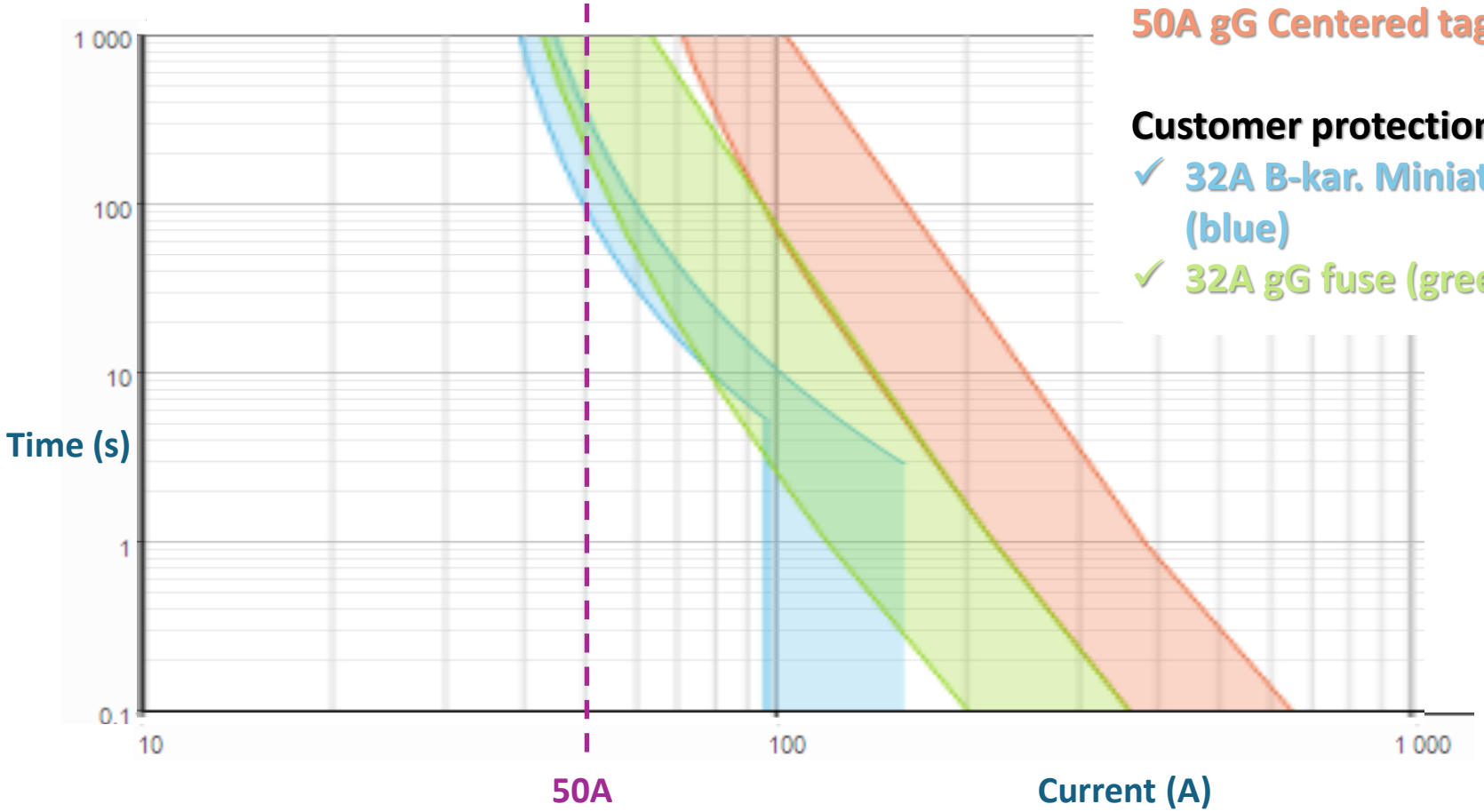
Protection device DSO:

50A gG Centered tag fuse (orange)

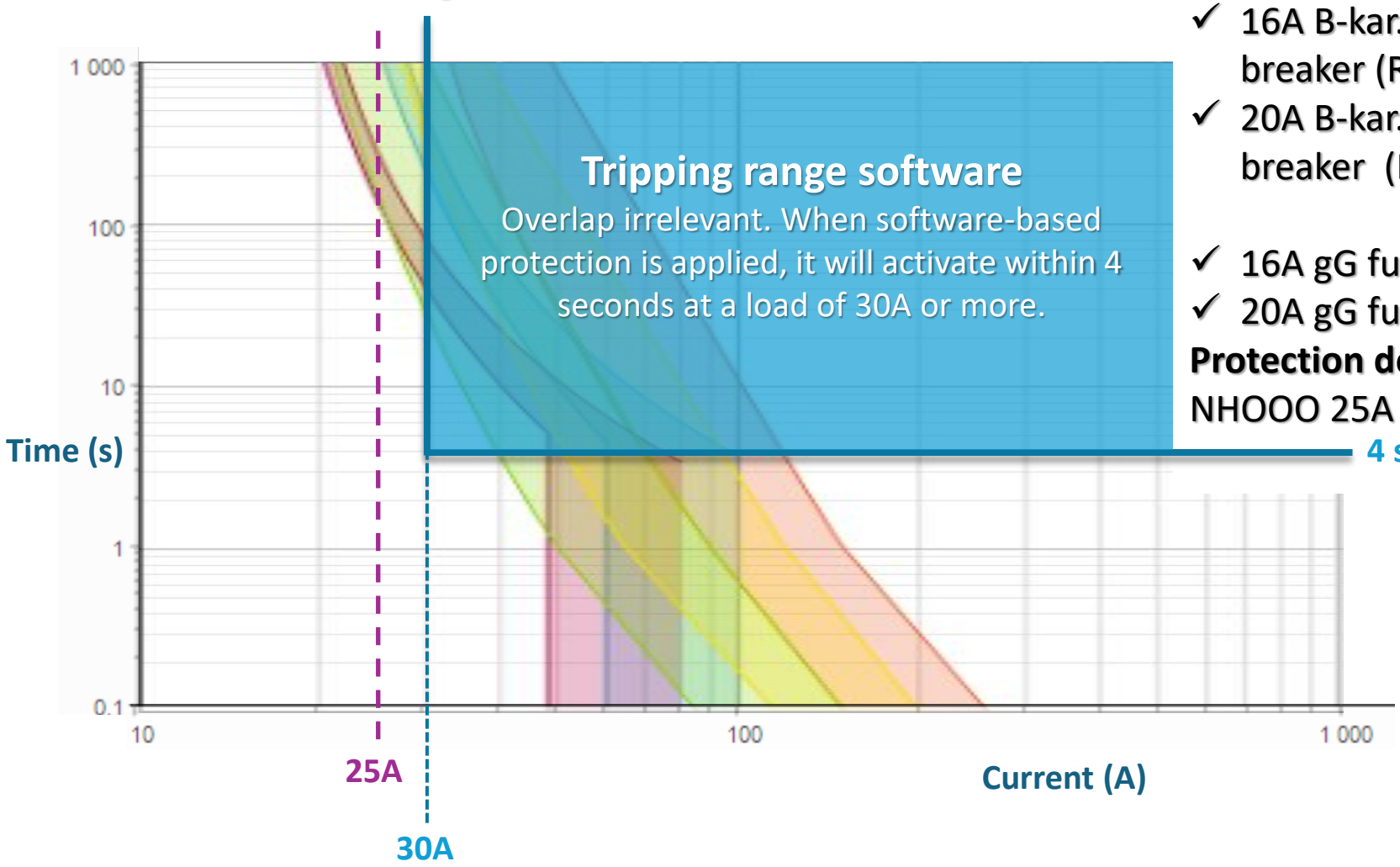
Customer protection:

- ✓ **32A B-kar. Miniature circuit breaker (blue)**
- ✓ **32A gG fuse (green)**



There is no overlap between the tripping curve of the DSO protection and the customer protection.

Example 25A grid connection with Software selectivity



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Customer protection:

- ✓ 16A B-kar. Miniature circuit breaker (Red)
- ✓ 20A B-kar. Miniature circuit breaker (Blue)

- ✓ 16A gG fuse (Green)
- ✓ 20A gG fuse (Yellow)

Protection device DSO:

NHOOO 25A gG (Orange)