

Resonance Damper

**Description:**

The resonance damper is a low voltage indoor switchgear device for elimination of ferroresonance phenomenon. It protects voltage transformers against potential ferroresonance overcurrent by prompt damping actions. Ferroresonance can arise in ungrounded power networks or in the network where is not directly grounded neutral point. It can occur between voltage transformer inductance and capacitances of system components. Transients in a system like switching can also trigger a ferroresonance stage which may cause a significant damage due to overvoltage and overcurrent surges caused by magnetic saturation of VT core. The device is determined to be used in cooperation with voltage transformers connected in open delta. The Damper is a smart (active) load instrument which eliminates these unwanted surges and protects voltage transformer when ferroresonance occurs. When input voltage is greater than the threshold voltage, the device activates and damping action is realized. It stays inactive up to threshold which is pre-defined as 20VAC. Thus the device shows no action against natural system asymmetry caused by phase imbalance. Threshold voltage can be set 20- 25-30VAC upon request by the manufacturer. There is a default 0.5s default time delay for activation after threshold is recognized and it can be set as 0.5s-1.5s- 2.5s-3.5s (by the manufacturer upon request), in order to keep the external protection device unaffected from damping process. If the voltage between terminals gets too high (or in the case of one phase is grounded), after pre-defined time, it automatically switches off to provide power safety for both itself and connected voltage transformers and after a certain time (according to thermal limits) tries to damp again. After the device being activated, it tries to damp the ferroresonance status until reaching a thermal limit (damping then cooling and afterwards damping). This function will protect the voltage transformers secondary windings from continuous high currents and over-heatings.

Features:

- LED signal for status tracking.
- Due to its low resistance when ferroresonance arises, it provides better damping than other damping resistors.
- Better power safety for earth-fault due to its high resistance during earth-fault.
- There is a one ferroresonance damper for secondary voltages between 100 and 120 VAC (open-delta).
- Activation time delay to keep other external protection devices unaffected.
- Saves space in customer application.
- Small size compared to damping resistors.
- Can be mounted low-voltage part on DIN-rail.
- One Damper for the protection of 3 voltage transformers with open-delta connection.

Resonance Damper

Technical Parameters:

1.Nominal voltage	:100-120VAC (open-delta)
2.Nominal Frequency	:50/60Hz
3.Activation Voltage	:20VAC, 25VAC, 30VAC (20VAC default)
4.Activation Delay	:0.5-1.5-2.5-3.5 sec (0.5 sec default)
5.Damping time @ 120V	:1 sec
6.Max. operational current	:14 A/1 sec
7.Protection Class	:IP20
8.Operating temperature	:-25°C to +55°C
9.Storage temperature	:-40°C to +85°C
10.Humidity	:up to %90
11.Dimensions	:69 × 86 × 56 mm
12.Weight	:0.15 kg
13.Installation	:35mm DIN rail (DIN EN 50 022)
14.Connection	:Screw, 0.5 - 2.5 mm ² wire

Connection Diagram:

LED Status	Description
Continuously ON	Damping action is in process
Blinking with ~ 1Hz	Cooling
Blinking with >>1Hz	Continuous over-voltage (earth-fault) or at thermal limits

