



# Line impedance measurements with CPC 100 & CP CU1

 1 hour

 English

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Learn about the importance of accurate knowledge of line impedances for reliable distance protection performance. Get an overview of how to perform a line impedance measurement with CPC 100 and CP CU1. Learn how to assess line impedance measurement results for validity and how to apply the distance protection relay performance check.

## Objectives

- ▶ Understanding the working principle of distance protection relays
- ▶ Calculation versus measurement of line impedances
- ▶ Connecting the test set to a power line by following relevant safety procedures
- ▶ Interpreting the results of the line impedance measurement and get the relevant data for the distance relay settings
- ▶ Overview of mutual coupling impedance applications

## Content

- ▶ K-factor theory for understanding of relay parameterization
- ▶ Examples of zone reaches due to inaccurate line impedance estimation
- ▶ Connection of the test set to the power line
- ▶ Performing and assessing line impedance measurements by means of a dedicated EXCEL template
- ▶ Noise suppression considerations
- ▶ Using RelaySimTest for the assessment of impedance-related relay settings

## Solutions

The line impedance EXCEL template  
The CP CU1 and CP GB1  
RelaySimTest

## Audience

Primary Field-Testing Staff  
Protection Engineers

## Prerequisites

Knowledge of electrical engineering  
Basic knowledge of protection engineering