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National Grid
Commissioning
Handbook
Procedure 32

**Commissioning Application of TP107 to
Mitsubishi HA / HSA relays**

CH 32
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1 PURPOSE

The purpose of this procedure is to outline the recommended practice for applying settings and configuration files to new multi-function relay protections on the National Grid system. This covers protection installed on new sites and also asset replacement protection.

This document should be used in conjunction with Transmission Procedure TP107, Protection & Control Relay Settings, and Commissioning Handbook 21, Management of Numerical Protection Schemes.

This procedure applies to the Mitsubishi HA & HSA family of relays. The software version used to undertake the comparison should be dictated by the relay setting sheet.

2 GENERAL OVERVIEW

TP107 requires that electronic comparisons are now carried out at identified stages of the relay settings process, in order to satisfy the requirements of quality assurance and multi-function relay management, as detailed in Commissioning Handbook 21.

This Commissioning Handbook details the process by which the electronic comparison process is carried out with the GE UR relays. It also specifies fixed and variable settings, to facilitate further checks if differences are identified as a result of the comparison process.

3 PROCESS REQUIREMENTS

3.1 Factory Alignment Of Calculations, Settings & Relay Files

Once the settings are produced and confirmed as acceptable by a National Grid Settings Engineer, a site specific configuration will be produced, and an electronic comparison will be carried out between this file and the original Type Registered configuration file.

Once the differences raised from the comparison are confirmed and accepted (via a check against the approved calculations), a MARS setting sheet will be prepared by the Supplier. This sheet shall also be checked against the approved calculations.

3.2 Factory Acceptance Test

Prior to commencing the FAT, the site specific configuration shall be loaded into the relay, and the CH21 sheets shall be made available to National Grid.

Before the FAT, comparisons will be carried out to ensure that the configuration is in alignment with both the MARS sheets and the CH21 sheets.

Once the FAT has been completed, the finalized MARS sheets shall be prepared and forwarded to site. The CH21 sheets shall account for any changes that have arisen during the FAT, and shall be supplemented with electronic comparison results.

3.3 Site Validation

Once the hardware arrives at site and is powered up & ready for Stage 1 commissioning to commence, an electronic comparison shall be carried out between the file in the relay and the file that was issued via MARS. The National Grid and Supplier's Commissioning Engineer shall then visually check the settings on the MARS sheets against the results of the SCT sheets when carrying out secondary injections on the new relays.

The stage 1 commissioning documentation must comprise:

- A set of MARS setting sheets for all new equipment, which should be checked and confirmed against the Site Commissioning Test (SCT) sheet.
- A set of CH21 sheets, which should be supplemented with comparison results between configurations at identified stages, as per the requirements of TP107.

Prior to Stage 2 on-load commissioning tests, a further comparison should be carried out by the National Grid & Supplier Commissioning Engineers, to ensure no modified settings (e.g. for testing purposes) have been erroneously left on the relay.

4. CONFIGURATION COMPARISON PROCESS

4.1 HA Series and MR4010E Relay Comparison

A separate process is followed for the comparison of the relay logic and the settings. The procedure for the comparison of the settings is covered first.

4.1.1 Settings comparison

The laptop carrying out the comparison should be connected to the target relay via a standard Ethernet crossover cable with RJ45 connectors. The HMI offline tool shall be launched. A login dialogue box will be displayed. Enter the User ID and Password as prompted and then click "OK". The default User ID and password are both "admin".

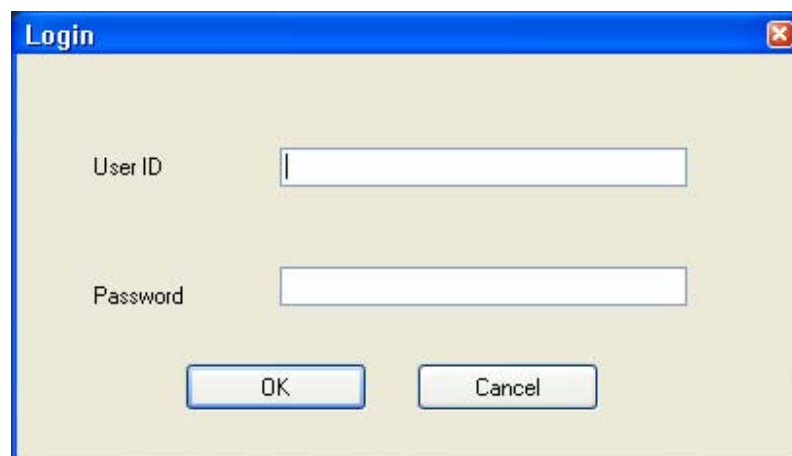


Fig. 1 Login dialogue box

The offline tool will open in the "Device Tree" screen.