

# DTS 10H



## Introduction

The DTS 10H is a small outline three phase power system emulator aimed for protective relays equipped with sensor inputs. The output connectors are three RJ-45 connectors, one connector per phase. In this quick manual the key features and essential system parameters will be described.

## Control

The three-phase emulator is equipped with five potentiometers which adjust typical system parameters.

### U-potentiometer

The potentiometer adjusts the output amplitudes related to the system voltages. This potentiometer adjusts the amplitude in all phases simultaneously.

## U0-potentiometer

Explicitly, there is no output for U0. Instead the voltage in the neutral will be calculated by the protective relay. In order to make the protective relay display a neutral voltage the internal phase balance in the three phase network is changed. In this product this principle is implemented in such a way that when U0 is increased what actually happens is the amplitude in L1 and L2 are decreased. Furthermore, from the perspective of L1, L2 its amplitude is adjustable in the range [0, U] where U is the voltage level determined by the U-potentiometer.

## I-potentiometer

This potentiometer adjusts the output amplitudes for the system currents. The output amplitude in all phases are affected by the value set by the potentiometer.

## I0-potentiometer

As for U0 there is no physical output for I0. Instead the relay is also in this case forced to calculate the neutral current according to Kirchhoff's first law by changing the network balance. The desired system imbalance is in this product introduced by increasing the amplitude of L3 relative to L1 and L2. Moreover, the range of the current in L3 is  $[I, 1.22I]$ .

## $\phi$ -potentiometer

The potentiometer adjusts the main phase shift between voltage and current. Both inductive and capacitive loads can be simulated for a wide range of angles.

## Outputs/Inputs

Sensor level simulation of I1-3, U1-3.

3-phase simulation, on both current and voltage.

Simulator Aux voltage 100-240V AC

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