

Introduction

This report documents the results of harmonic tests carried out on a DPI52L3K12 Voltage Dip-Proofing Inverter.

Test facility: Siemens Isando Electronic Testfield
Equipment tested: DPI52L3K12 Voltage Dip-Proofing Inverter
Tests performed by: J Wendler
Tests witnessed by: A Smit
Tests carried out: Harmonic disturbance tests

Summary of test results

The device tested did not exhibit any susceptibility to harmonic currents injected on the fundamental current.

Definition

Harmonic Effects (Alternating Current Machines by M G Stay)
The effects of harmonic currents are: additional iron losses due to circulating currents; increased core loss; Magnetic interference with protective gear and communication circuits. Harmonic voltages, depending on their magnitude and frequency, may cause: Increased dielectric stress; electric field interference with communication circuits; resonance between the inductance of the transformer winding and the capacitance of the feeder to which it is connected.

Identification of test equipment

EPOCH-E-10
YEW type 2558 ac voltage current standard
HP 54601A Oscilloscope
Phillips PM5191 Programmable synthesiser / Function generator
Load Siemens 3TH2022 Relay

Test methodology

1. Inject 110Vac from EPOCH
2. Inject 22Vac from YEW at the following frequencies:
150, 250, 350, 450 & 550Hz
3. Interrupt AC voltage supply for 50ms at each of the above frequencies.
4. Check that the load coil remains picked up.

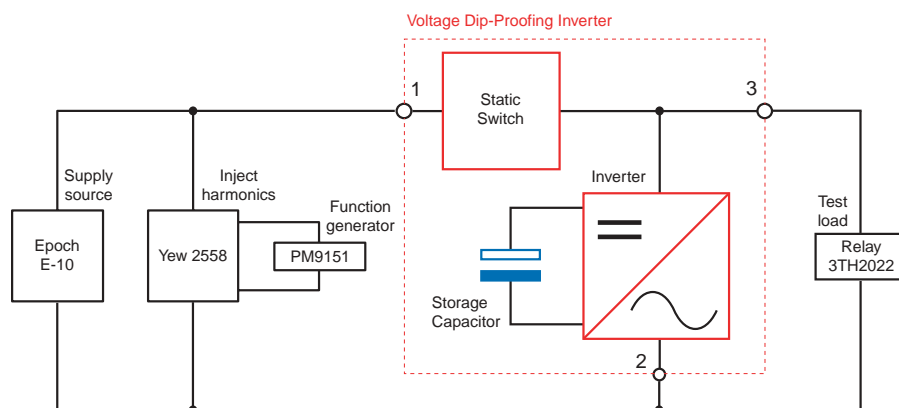


Fig 1
Test setup.

DPI Harmonic immunity

Results

The load coil remained picked up through all the tests.

Conclusion

The Voltage Dip-Proofing Inverter performed to its specification during the tests. It is therefore clear that the device is not adversely affected by harmonic distortions on the supply.