

COMPENSATION IMPEDANCE (IC)



Downstream of the HVB/HVA transformer, compensation impedances equip MV networks with neutral point connection (aerial-underground rural networks).

Developed as part of the Enedis MALTEN project and installed in source stations, compensation impedances allow:

- The creation of an artificial neutral point separate from the HVB/HVA transformer.
- Compensation of the network's total capacitive current through automatic tuning.
- The operating of zero-sequence protection, by ensuring a sufficient active current in the single-phase fault.

Main characteristics

- Phased compensation impedance, adjusted using vacuum switches activated by a command control switch connected to the network's permanent auscultation system.
- Hermetic materials, in a mineral oil bath, for an exterior installation.
- ONAN cooling mode.
- Lifting by the 4 rings located on the top cover.
- Primary rated voltage for IC of 600 A and 1000 A: 21400 V.
- Frequency for IC of 600 A and 1000 A: 50 Hz.
- Neutral rated current: from 80 to 600 A for IC of 600 A / from 80 to 1000 A for IC of 1000 A.

Command control function:

- Translation of command orders from the Automatic Tuning System (SAA) into IC switch opening and closing orders.
- Command in manual mode.
- Protection against series resonance phenomena via an overvoltage detection function causing instantaneous discordance.
- Sending of information to the source station (IC position).

Advantages

- Ensures compliance with the maximum 1500 V requirement of overvoltages on the LV network following a phase-earth fault on the MV network.
- Protects people by preventing touch voltage (MV grounds).
- Prevents hazardous voltages on telephone networks due to the earth coupling phenomenon.
- Reduces the destructive effects of phase/earth faults by limiting their intensity to a value below 40 A (under full zero sequence voltage).
- Improves supply quality by promoting the automatic extinguishing of most single phase faults.
- Reduce size and weight: simplified transfer from IC 600 A to 1000 A with, for both items of equipment, identical bases and similar sizes (length and width).

Uses

- Rural environment
- Peri-urban environment

