

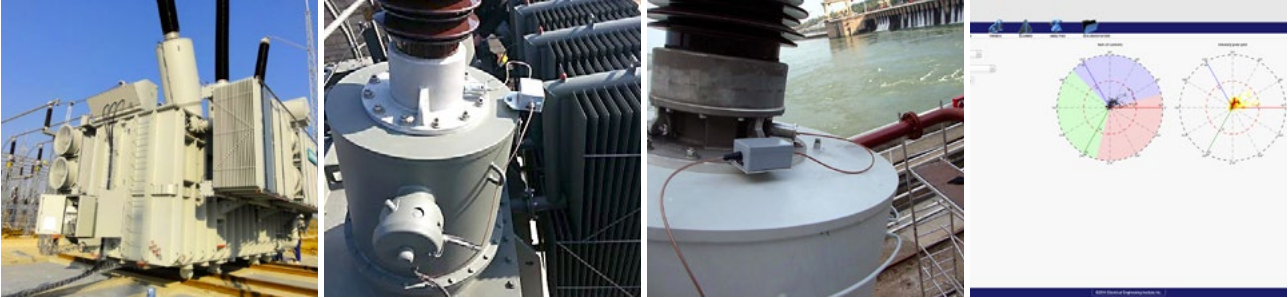
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KONČAR TMS BUSHING MONITORING SYSTEM

KONČAR - TMS Bushing Monitoring System

KONČAR TMS - Bushing Monitoring System provides insight in bushing insulation state while transformer is online. Developing fault inside bushing now can be detected in very early stage so proper action can be taken to save substation equipment and personnel.



Powerful digital signal processor module enables precise measurement of bushing leakage current amplitude and phase angle. By measuring those parameters, relative dissipation factor change ($\Delta \tan \delta$) and relative capacitance change ($\Delta C/C_0$) can be estimated.

System architecture

KONČAR TMS - Bushing Monitoring System is modular system and comes in two versions.



Basic system – for 3 bushings

On-line bushing capacitance and $\tan \delta$ monitoring for 3 bushings (6 optional)

- » Overvoltage detection
- » Advanced algorithms and analysis tools
- » Built-in additional 8 analog inputs for measuring load current, temperature, humidity, etc.
- » Built-in additional 2 digital outputs for alarm signaling



Expandable system – up to 6 additional modules

On-line bushing capacitance and $\tan \delta$ monitoring for 3 bushings (optional up to 12 bushings)

- » Overvoltage detection
- » Advanced algorithms and analysis tools
- » Built-in additional 8 analog inputs for measuring load current, temperature, humidity, etc.
- » Built-in additional 2 digital outputs for alarm signaling
- » Expandable system - analog input, analog output, digital input, digital output or RTD module can be added to create complete transformer monitoring system

Key features

- » Bushing capacitance and $\tan\Delta$ monitoring
- » High speed analog input channels
- » Synchronous acquisition
- » Digital signal processing
- » Bushing adapters for various tap design
- » Stainless steel 304 case (316 on demand)
- » Voltage RMS, Peak measurement
- » Overvoltage detection
- » Frequency and phase measurements
- » User configurable setpoints for alarms based on abnormal bushing condition

Measurement methods

KONČAR TMS - Bushing Monitoring System can monitor bushings using 3 methods. Each method has its advantages and disadvantages. Method selection has to be based on measurement requirements, available conditions in substation and budget.

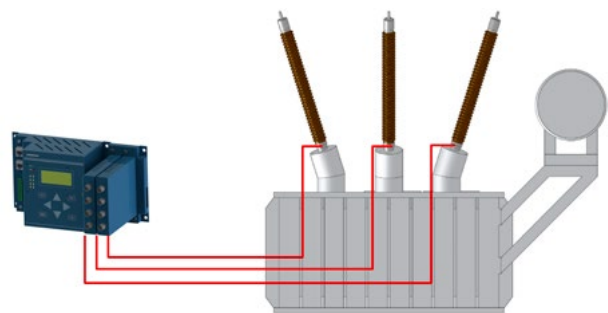
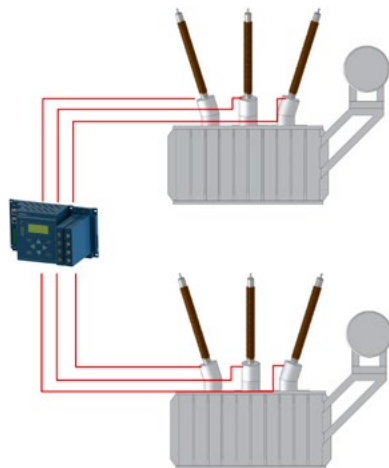
Sum-of-phasors

Advantages:

- » Simple method
- » Less cabling
- » High sensitivity

Disadvantages:

- » Network unbalance problems



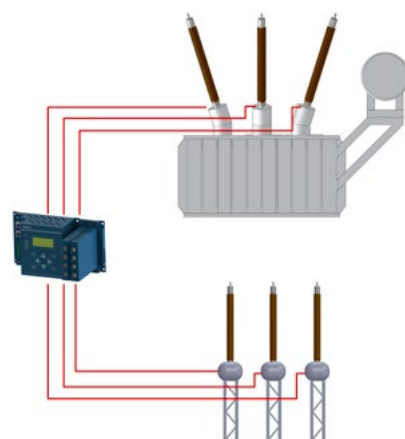
Bushing to Bushing comparison

Advantages:

- » No network unbalance problems
- » Monitors 6 bushings

Disadvantages:

- » More cabling
- » Available only if 2 transformers are operating concurrently on same busbar



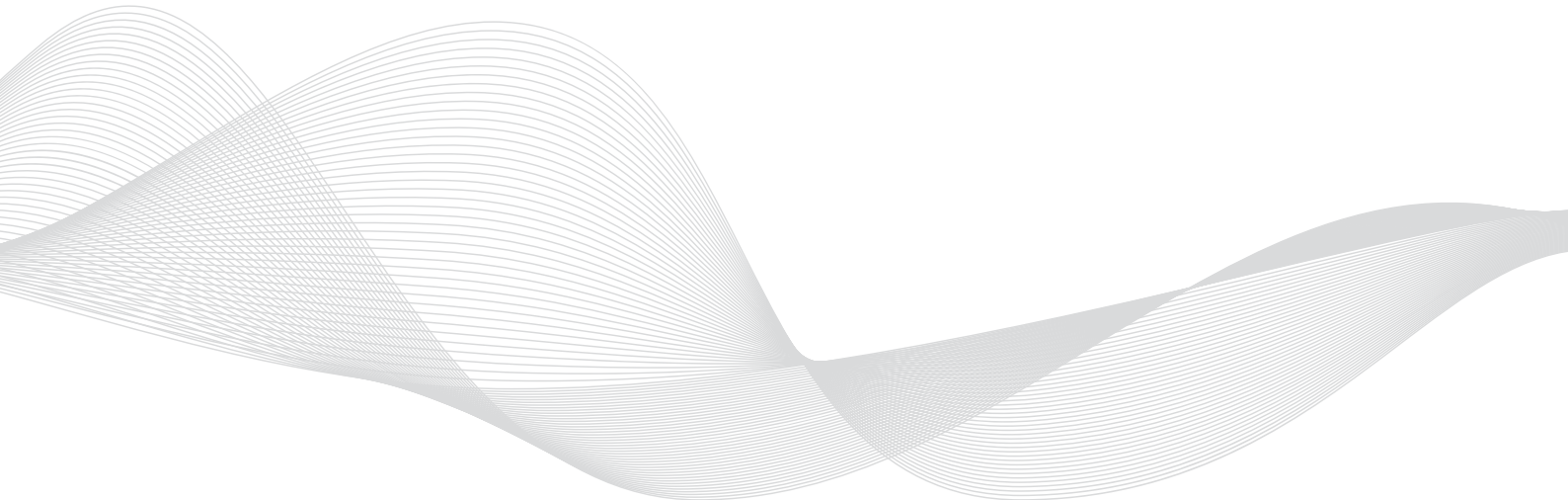
Voltage transformer reference

Advantages:

- » Absolute measurement
- » No network unbalance problems

Disadvantages:

- » More cabling
- » VTs are usually placed far away from transformer and very often not available



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Contact us for more information!



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