

VMS-1002

TVMS - Torsion Vibration Monitoring System



About the VMS platform

A failure of large power systems results always in economic losses due to breakdown of the electric supply immense repair costs. That is the reason for the monitoring and diagnostics of operational states of the machine components, and why it attracts more attention than ever before.

The TVMS is capable of:

Online monitoring — available for different machine states such as run-up, run-down, nominal operation

Analysis and alarming — full frequency analysis, identification of eigen torsional frequencies, online alarms from amplitude value triggering

Archivation — data are stored in database server for potential further offline analysis and data mining, remote control of the archive

TVMS target applications

Fluctuations of generator air-gap torque, caused by non-stationary conditions of electrical power grid, influence shaft torsional vibrations. Symptoms of shaft torsional vibrations are not measurable by standard sensor instrumentation, so special measurement should be installed.

The direct consequence of shaft torsional vibrations is local acceleration or deceleration of shaft circumference when it is measured by a stationary sensor. Torsional vibrations of a turbine-generator train manifest themselves as oscillatory relative angular displacements of distinct sections of the rotor. Due to the torsional deformation, material stress occurs which, in the most unfavourable scenario, causes shaft cracking. Additionally, torsionally-induced blade vibration proves to be a source of blade root cracking, presenting a severe threat to the safety operation of the machine.

VMS-1002 specification

- Online monitoring of shaft torsional vibration
- High accuracy (12-bit resolution)
- Sampling frequency 100 MHz/ch
- 4 measurement channels/unit
- 100 Mbps ethernet interface

Symptoms of shaft torsional vibration are not measurable by standard sensor instrumentation, so special measurement should be installed.

**TVMS protects the shaft line
from the effects of harmful
torsional vibration**

TVMS compatible sensors:

- Optical probes - VMS-1503, VMS-1903
unlensed probes based on laser
beam reflection
- Hall-effect sensor VMS-1910
differential sensor - half bridge with
two hall-effect sensor elements

Customer's needs, preferences, and the operating environment determine the final choice of sensors.

Early-stage diagnosis of failure phenomena in rotating machines helps to improve their durability and maintenance management. Therefore, systems based on VMS platform are suitable for operators as well as for manufacturers of rotating machines.



VMS-1002 TVMS System

We offer already proven services in the area of:

Design and Customization — customer's needs and preferences are included into the design and development phase such as customized displays and data communication protocols

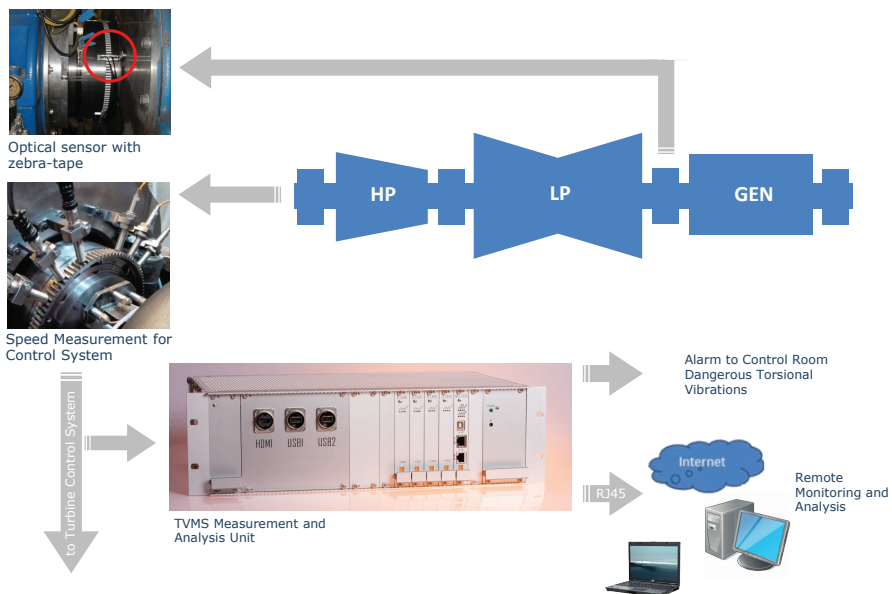
Installation — our engineers are prepared to be available on site and/or participate in installation of sensors and TVMS monitoring system or to inspect the completed installation

Data Analysis Services — we share our machinery troubleshooting knowledgebase ad-hoc or periodic reporting of the machine condition

Software Maintenance — continuous responding to customer requests leads to independent software improving — maintenance package entitles the user to all available software updates

Operator training — on-site training of the customer's staff

Scheme of installation:



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