



www.tes.eu

TES s.r.o. | Pražská 597 | 674 01 Třebíč | Czech Republic



# MOSAD<sup>®</sup>-6

On-line monitoring of analogue and binary signals

TES has developed the stationary modular system MOSAD<sup>®</sup>-6, designed for the continuous monitoring of operation of large, high-voltage electrical equipment and systems and for the recording of rapid transients and failure modes and their subsequent analysis. The system is designed for a fully autonomous operation without permanent staffing. The MOSAD<sup>®</sup>-6 system represents the next generation of existing MOSAD<sup>®</sup>-4 and MOSAD<sup>®</sup>-5 systems.

On-line monitoring using the predecessor of MOSAD<sup>®</sup> system was recommended at Temelín NPP by the OSART Mission of the International Atomic Energy Agency as a „good maintenance practice“ (OSART Good Practices MAINTENANCE, Maintenance Facilities and Equipment).

# MOSAD<sup>®</sup>-6

The MOSAD<sup>®</sup>-6 system comprises of three core elements, namely diagnostic units, central control unit and data server.

## Diagnostic unit

The unit acquires data through direct measuring and data communication. It is composed of an industrial PC and an input unit, which can be equipped with a combination of up to 15 analogue and binary measuring cards. Any number of these diagnostic units can be connected to the measuring system.



**Analogue measuring module** is made up of 8-channel analogue measuring cards with galvanically isolated inputs, integrated in the input unit. The analogue module allows for:

- scanning the status of all connected signals at the same point in time with the sampling frequency up to 2 MHz,
- continuous monitoring of the connected signals,
- recording the connected signals in case of event occurrence including signals history prior to the event,
- possibility of adaptive adjustment of conditions to trigger recording when the signal changes, which permits the continuous monitoring of connected signals and the recording of any change,
- transfer of the acquired data to the data server.

**Binary measuring module** is made up of 32-channel binary measuring cards with galvanically isolated inputs, integrated in the input unit. This module allows for:

- scanning the status of all connected signals at the same point in time,

- galvanic isolation of input signals from each other as well as from the logic part of the system,
- transfer of the acquired data to the data server.

**Data communication module** provides measured values of analogue and binary data obtained through communication with other devices using standard communication protocol Modbus, SPA-Bus, IEC 61850, etc.

## Central control unit

It provides users with a control interface for the entire system through a web interface. It also acts as a medium-level link between the diagnostic units and the database system.

Last but not least, it also functions as a gateway for acquiring data from other measuring and control systems (e.g. digital protection fault recorders, generator excitation controller, transformer diagnostics, etc.). The central control unit also provides numerous supporting and operating functions for other parts of the MOSAD<sup>®</sup>-6 system.

## Data server

It serves the diagnostic units with the storage of the acquired data and system status and failure records and contains the configurations of the individual diagnostic units and their software. Some of the data are stored on the data server in the form of files on local disks, while a larger portion of them is stored in the database system on the server.

