

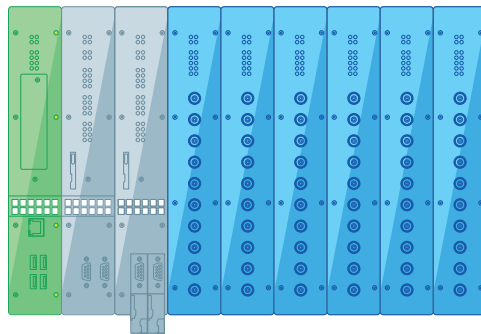
# VIB3000 Machinery Protection

Highest safety and availability  
for your plant assets



**Omnivise VIB3000 Machinery Protection** is an integrated hardware platform for Machinery Protection, online Condition Monitoring and Vibration Analysis. The Siemens Energy solutions consist of hardware components and software tools for data analytics relying on sensors. Continuous condition monitoring enables transparency on the functioning of processes and aggregates and helps to detect failures at an early stage.

## VIB3000-Platform



This common platform basically consists of a 19" rack backplane (VIB340), up to six 10-channel **Data Acquisition Boards (VIB320/321)**, and three slots for two types of modules determining the functions of the system.

Depending on the number of Machinery **Vibration Monitoring Module (VIB310)** and **Machinery Analysis Module (VIB330)** selected for an application, the assembled VIB3000 solution is one of the following.

### Modularity of the VIB3000 rack platform – possible configurations:

1. Machinery Protection system with redundant power supply, SIL-1-certified
2. Machinery Protection system with redundant vibration processing
3. Combined Machinery Protection and Analysis solution CM500
4. Combined Machinery Protection and Analysis solution CM500 with redundant vibration processing
5. Stand-alone Machinery Analysis system CM500

In a wide range of retrofit projects, the system has proven its adaptability to all kinds of sensors, in all kinds of control system environments for all kind of power plants and industrial applications.

# Our solutions at a glance

## VIB3000 Machinery Protection

Safe operation and high availability are crucial for the economic success of a technical asset. In order to maintain its safety and availability it is necessary to continuously obtain and assess information on a machine's current condition.

The VIB Machinery Protection System was carefully designed to offer security for the machine and its environment from the consequences of machine failure and security against spurious tripping and thus maximum availability.



### Our proven and reliable protection system

- **uses the latest technologies** and is at the cutting edge in vibration instrumentation,
- **avoids outages caused by faults within the protection system** and always provides the full information,
- **reduces the hardware, cabling, and engineering effort** and simplifies spare part stocking,
- **can be operated directly from the control room** and permits a system status analysis from there.

What differentiates VIB3000 from competitor systems is the wide variety of available redundancy options. Depending on customers' redundancy philosophy and needs, VIB3000 can be configured to use redundant sensors, redundant signal processing, redundant voting and redundant connections to the control system.

Apart from redundancy, VIB3000 also supports SIL-1 (Safety Integrity Level 1) approved by German TÜV signal processing and control system communication.

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## CM500 Condition Monitoring

The optional VIB330 Analysis Module extends VIB3000 Machinery Protection to become a full-blown vibration diagnostic system. VIB330 pre-processes vibration samples into vibration indicators, which are the basis for the CM500 software. The VIB330 also handles the Diagnostic Monitoring of the machine by continuously comparing current characteristics to reference values derived earlier.

CM500's online Condition Monitoring features and vibration analysis toolkit have matured for more than two decades. Today, CM500's sophisticated High-Sensitivity Diagnostic Monitoring features and vibration analysis package comprises expert tools for all types of rotating equipment, from turbo sets to balance-of-plant machinery.

With CM500 Online Condition Monitoring once alerted, the severity of a problem can be actively monitored and the operator could e.g. account for the problem by avoiding critical operation modes. The condition monitoring system enables maintenance engineers to analyze the machine's condition and thus generate valuable information for decision making and e.g. overhaul preparation.

CM500 Condition Monitoring enhances machine availability, makes plant availability more predictable and cuts maintenance costs.

### Notable features are

- **maximum possible measurement accuracy** through rotor-triggered data acquisition
- **maximum sensitivity to changes**, using up to 1,000 automatically derived limit values per vibration measuring point (machine learning)
- **comprehensive condition monitoring** for current and historic machine health at constant and transient operation
- **a unique archiving concept** with event-oriented storage of complete data sets and tools for automated data interpretation and
- **numerous additional data analysis functions** including statistical assessments or transient recorder functionality

