



| Part type designation | Part number |
|-----------------------|-------------|
| iRM                   | 00045716-00 |

## iRM – Independent Remote Monitoring

Wind turbine operators face the daily challenge of reliably assessing warnings, alarms, and condition information to determine the appropriate actions. Although many turbines are already equipped with Condition Monitoring Systems (CMS), an independent technical assessment of reported events is often missing.

Independent Remote Monitoring (iRM) complements existing monitoring solutions with a vendor-independent technical second opinion based on available monitoring data. Bachmann's Remote Monitoring Team analyzes abnormal events, evaluates them in the context of available technical and operational information, and supports operators in prioritizing maintenance actions. This enables more informed and efficient maintenance decisions.

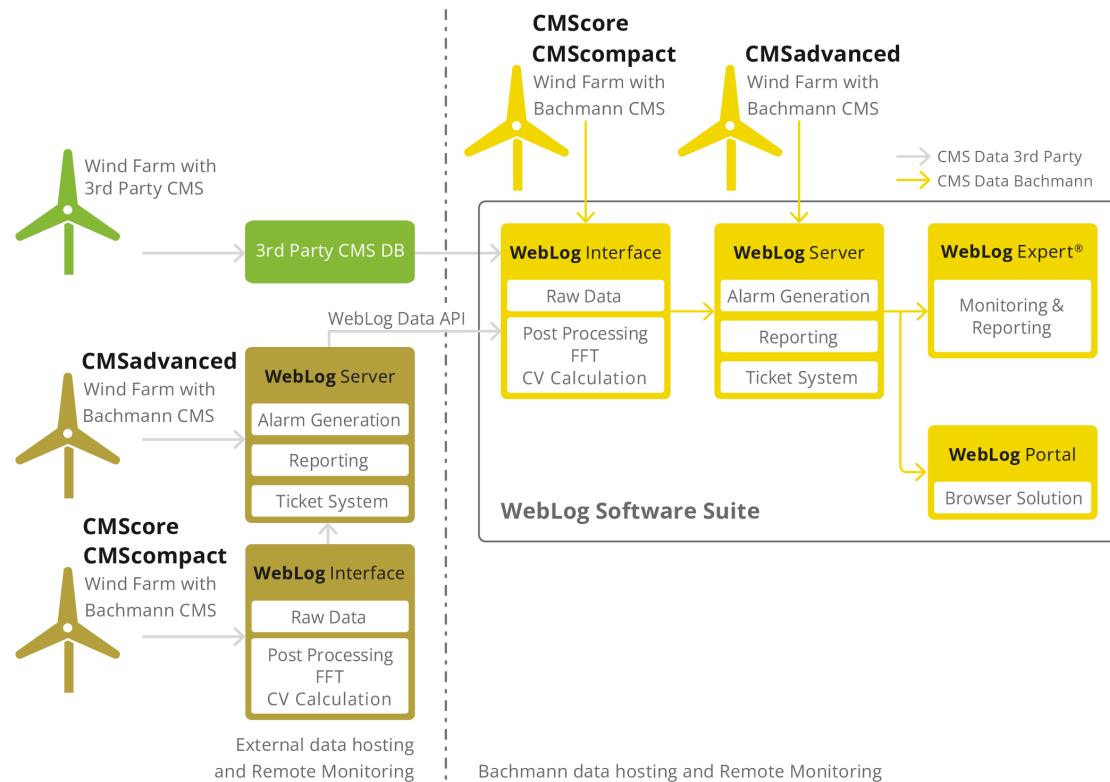
### Your benefits

- Independent assessment of critical events
- Utilization of existing Bachmann and third-party CMS installations
- Early evaluation of relevant anomalies
- Greater confidence in maintenance decisions
- Transparent documentation of events and assessments
- Improved visibility of the system condition
- Reuse of existing CMS infrastructure, where technically suitable

iRM is a service for the independent assessment of condition data from existing Condition Monitoring Systems (CMS). The required raw data is continuously provided, integrated into the Bachmann WebLog Suite, and analyzed there. The assessment and diagnostics are based on the measurement and condition data required for the specific analysis. Wherever technically available, the underlying raw data is used. Evaluations or interpretations previously performed by third parties are not included in Bachmann's analysis.

For systems equipped with Bachmann Condition Monitoring hardware, condition data already available on the external WebLog Server can be used directly for iRM. CMS solutions from other manufacturers can also be connected via the WebLog Interface, provided that the required data is available in a suitable format.

Bachmann's Remote Monitoring Team reviews the provided data and analyzes detected anomalies based on the available information. For relevant events, operators receive a notification through the WebLog ticketing system together with a technical assessment to support further actions.



▼ **Integration of a Bachmann CMS with an existing WebLog Server and connection of third-party CMS solutions**

### Scope of services

The monitoring and assessment scope is defined by the agreed service level.

- Access to CMS data through the WebLog Suite
- Review and assessment of abnormal condition data by the Bachmann Remote Monitoring Team
- Alarm validation and classification by Bachmann
- Ticket-based feedback and tracking
- PDF event reports when Bachmann-defined warning or alarm thresholds are exceeded

### Optional services

- Regular fleet status reports
- Root cause reporting
- Recommendations for optimizing measurement configuration

### Requirements and integration

iRM can be used with existing Bachmann Condition Monitoring Systems as well as supported Condition Monitoring Systems from other manufacturers. Third-party systems are connected via the WebLog Interface. Required condition data can either be transferred directly from the third-party system or converted into the required format using a converter.

A prerequisite for integrating a third-party CMS is the availability and accessibility of the condition data required for analysis. Therefore, the technical suitability of the system is evaluated prior to integration.

The implementation details of the connection are defined during project planning. Depending on the CMS in use and the selected hosting and integration approach, additional interface, network, or converter components may be required.

For implementation, the customer must provide the necessary data access, network connectivity, and access permissions. In addition, information regarding the turbine and component structure, installed sensors and measurement configuration, as well as relevant drivetrain kinematic data is required. This information enables reliable analysis and assessment of the provided condition data.

### Target audience

- Wind turbine operators
- Operations and maintenance service providers
- Asset managers
- Investors
- Insurers and technical risk assessors

iRM provides the foundation for data-driven technical decision-making and future services within Independent Risk Management.

#### **Notes**

The iRM assessment is based on the condition data and supplementary information available to Bachmann. The scope and quality of the provided data, as well as the existing measurement configuration, influence the achievable analysis results.

If required, Bachmann can provide recommendations for optimizing the measurement configuration and data availability.

Implementation of such modifications to existing Condition Monitoring Systems remains the responsibility of the operator or the respective system provider and is not part of the iRM service.

The iRM service does not replace the installed CMS or the technical responsibility of the operator or maintenance service provider. iRM does not intervene in the control or operation of the wind turbine.