Cloud Interface for ABB Ability™ Condition Monitoring for powertrains
User guide
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User guide
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*Further information*
Introduction to the guide

Contents of this chapter
This chapter provides information about the guide, such as applicability, target audience and contents of this manual.

Purpose of this guide
This user guide describes the Cloud Interface for ABB Ability™ Condition Monitoring for powertrains and presents some use cases for integrating projects. Note that, further in this manual "Cloud Interface for ABB Ability™ Condition Monitoring for powertrains" is referred as "Cloud Interface".

Applicability
This guide applies to Cloud Interface for ABB Ability™ Condition Monitoring for powertrains, version 2.0 or later.

Compatibility
The Cloud Interface for ABB Ability™ Condition Monitoring for powertrains is a common interface for data collected by Smart Sensors and Condition Monitoring for Drives (CMD). The Cloud Interface supports:
• all drives visible on Condition Monitoring for Drives (CMD), version 4.0 and
• all assets available on ABB Ability™ Smart Sensor API, version 7.4.

Target audience
This guide is intended for people who work on the Cloud Interface.
Related documents

<table>
<thead>
<tr>
<th>Document</th>
<th>Code (English)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloud Interface for ABB Ability™ Condition Monitoring for powertrains user guide</td>
<td>3AXD50000603152</td>
</tr>
<tr>
<td>Cloud Interface for ABB Ability™ Condition Monitoring for powertrains API guide</td>
<td>3AXD50000600670</td>
</tr>
<tr>
<td>Cloud Interface for ABB Ability™ Condition Monitoring for powertrains reference guide</td>
<td>3AXD50000614936</td>
</tr>
<tr>
<td>Cybersecurity for ABB drives Technical guide</td>
<td>3AXD10000492137</td>
</tr>
<tr>
<td>ABB Ability™ Smart Sensor user guide</td>
<td>9AKK107045A8954</td>
</tr>
</tbody>
</table>

Terms and abbreviations

<table>
<thead>
<tr>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>API</td>
<td>Application Program Interface</td>
</tr>
<tr>
<td>ClientId</td>
<td>Client username used while authenticating a client account.</td>
</tr>
<tr>
<td>Cloud Interface</td>
<td>Application programming Interface running in the cloud.</td>
</tr>
<tr>
<td>CMD</td>
<td>Condition Monitoring for drives. The CMD web portal and API are used to monitor drives.</td>
</tr>
<tr>
<td>IAM</td>
<td>Identity and Access Management is used to authenticate and authorize individuals access to certain systems or technology resources.</td>
</tr>
<tr>
<td>InformationModel</td>
<td>Context specific model of objects with their properties and relationships.</td>
</tr>
<tr>
<td>Powertrain</td>
<td>Structure of Drives and Smart Sensor assets (motors, pumps, bearings, etc.)</td>
</tr>
<tr>
<td>Secret</td>
<td>Password to authenticate the client account.</td>
</tr>
<tr>
<td>Smart Sensor</td>
<td>Web portal and API to monitor assets, for eg. motors, pumps, bearings using specific sensors, etc.</td>
</tr>
</tbody>
</table>
Overview

Contents of this chapter

This chapter gives an overview of the Cloud Interface for ABB Ability™ Condition Monitoring for powertrains.

Overview

Cloud Interface for ABB Ability™ Condition Monitoring for powertrains provides access to equipment data of Condition Monitoring for drives (CMD) and Smart Sensors. You can access data, without having to connect the CMD or Smart Sensor web portals via Internet browser. See the connections shown in the below block diagram. Using the Cloud Interface, you can integrate data to own maintenance management system or transfer to a common maintenance system.

The web-based Cloud Interface uses the HTTPS RESTful protocol that provides secure and controlled remote access to the cloud data. You can access data using an active and valid subscription to the cloud platform.
10 Overview

Block diagram
Accessing the Cloud Interface

Contents of this chapter
This chapter describes how to access the Cloud Interface.

Access the Cloud Interface
Only authorized clients can access all assets and commands of the Cloud Interface. You will need a Client ID (username) and Secret (password). Contact support team for access permissions. Share your E-mail Id to receive account details.
Integrating data with Cloud Interface

Contents of this chapter
This chapter describes how to integrate data with the Cloud Interface.

Creating an integration project
You can create an integration project to integrate data into your system software. To create an integration project using the Cloud Interface:

1. Define the project design requirements, integration scope, validation method, data visualization, etc.
2. On the Swagger portal, read the service specifications of the project. See, https://api.conditionmonitoring.motion.abb.com/swagger
3. On the top right of the Swagger page, click Authorize.
4. In the popup window, type Bearer followed by the Bearer token. If you are an Admin client, you can copy the value from accessToken field in the authentication step. For more information, see Cloud Interface API guide.
   **Note:** Prefix “Bearer” followed by a space character.
5. Click Authorize followed by Close.
   The bearer token starts applying for all further calls. It defines the used client and its assigned role.
   **Note:** The bearer token is valid for only one hour. To receive a new token, you must authenticate again and use the new token. If you prefer to change the client, authorize the new client, Logout from the popup window and then enter the new bearer token.
   The new integration is created. If implementation does not work, contact system integrator.

For more information on external integration guidelines, contact support team.
Disclaimers

■ Generic disclaimer

The manufacturer shall have no obligation hereunder with respect to any product which (i) has been improperly repaired or altered; (ii) has been subjected to misuse, negligence or accident; (iii) has been used in a manner contrary to the Manufacturer’s instructions; or (iv) has failed as a result of ordinary wear and tear. All material in this manual is subject to change without a further notice. The manual is intended as non-contractual document.

■ Cybersecurity disclaimer

This product is designed to be connected to and to communicate information and data via a network interface. It is Customer’s sole responsibility to provide and continuously ensure a secure connection between the product and Customer network or any other network (as the case may be). Customer shall establish and maintain any appropriate measures (such as but not limited to the installation of firewalls, application of authentication measures, encryption of data, installation of anti-virus programs, etc) to protect the product, the network, its system and the interface against any kind of security breaches, unauthorized access, interference, intrusion, leakage and/or theft of data or information. ABB and its affiliates are not liable for damages and/or losses related to such security breaches, any unauthorized access, interference, intrusion, leakage and/or theft of data or information.
Use cases

Contents of this chapter
This chapter includes example use cases for integrating projects with Cloud Interface. The examples refer to several operating services of the Cloud Interface.

Use case 1: Request DIB data
The Cloud Interface uses an external system for requesting Installed Base details.

- **Block diagram**

  ![Block diagram](image)

- **Requested data**

<table>
<thead>
<tr>
<th>Requested data</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Installed Base data</td>
<td>Provides Installed Base data, for example, List of assets, asset type name (e.g. motor, pump, drive type), asset ID, asset name, asset serial number, asset description, plant ID, plant name, organization ID, organization name, etc.</td>
</tr>
<tr>
<td>Detailed asset data for a specific asset ID</td>
<td>Provides asset data for the requested asset ID.</td>
</tr>
</tbody>
</table>

Use case 2: Request event data

The asset health parameters or the key performance indicators (KPIs) define the status of the asset. If the parameters exceed a set limit, the Smart Sensor device sends an alert or alarm notification to the Smart Sensor platform, web portal and authorized external systems. Each asset receives the notification via an E-mail or on mobile devices.

Note: You must be an authorized user of the Cloud Interface, to request alert and alarm notifications and to add maintenance events, from an external system.

Additionally, you can add maintenance events from an external system to track the maintenance operations in the Smart Sensor application.

■ Block diagram

![Block diagram]

■ Requested data

<table>
<thead>
<tr>
<th>Requested data</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alert and alarm notifications</td>
<td>Provides a list of notifications or events. The notifications apply only for the assets of authenticated users.</td>
</tr>
<tr>
<td>Maintenance events</td>
<td>Provides events or notifications for a maintenance intervention.</td>
</tr>
<tr>
<td>Close an alert or/and an alarm</td>
<td>Provides events or notifications resolved via Cloud Interface.</td>
</tr>
</tbody>
</table>
Use case 3: Request condition indexes of an asset

Condition indexes represent the health status of an asset. The request for condition indexes via the Cloud Interface uses an external system. There are four types of condition indexes that are independent of the asset type (e.g. motor, pump, drive).

Each condition index consists of value 0 or 1 and also indicates the status as: poor, tolerable or ok.

- 0 – indicates unhealthy status
- 1 – indicates healthy status.

**Block diagram**

```
| External system | Request condition indexes | ABB Ability™ Digital Powertrain Cloud Interface |
```

**Requested data**

<table>
<thead>
<tr>
<th>Requested data</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability</td>
<td>Indicates the availability of the asset.</td>
</tr>
<tr>
<td>Environment</td>
<td>Indicates the quality of environmental parameters. that affects the operation of the asset, for example, the internal or external temperature and humidity in relation to the asset.</td>
</tr>
<tr>
<td>Reliability</td>
<td>Indicates the ability of the asset to perform a function consistently without degradation or failure (e.g. asset maintenance advice, number of asset failures in the past operating period).</td>
</tr>
<tr>
<td>Stress</td>
<td>Indicates the load and performance of the asset, for example, current power of the motor in relation to the maximum power.</td>
</tr>
</tbody>
</table>

Use case 4: Request historic measurement data of an asset

Historical and analytical data is the measurement data of an asset, for example, speed, skin temperature, overall vibration, etc. The request for historic data via the Cloud Interface uses an external system.

**Block diagram**

```
| External system | Request measurement data | ABB Ability™ Digital Powertrain Cloud Interface |
```
Use case 5: Request predictive maintenance data of an asset

Predictive maintenance data is the planned maintenance data of an asset, typically information of expected lifetime of an asset. This feature is only available for specific drives. The information is based on specific components of the device, for example, fan, IGBT, capacitor, etc.

**Block diagram**

![Block diagram](image)

**Requested data**

<table>
<thead>
<tr>
<th>Requested data</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summary</td>
<td>Provides summary of preventive maintenance data (eg. commissioning date, end date of expected lifetime, preventive maintenance date).</td>
</tr>
<tr>
<td>Status</td>
<td>Provides information on the three levels (high, medium, low) that impact the environmental and usage circumstances on the lifetime of the component.</td>
</tr>
</tbody>
</table>

**Commands**

The following commands are used to deploy the example use cases.

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GET /AssetType</td>
<td>Returns the available asset types</td>
</tr>
<tr>
<td>GET /InstalledBase</td>
<td>Returns asset data from DIB</td>
</tr>
<tr>
<td>GET /InstalledBase/{id}</td>
<td>Returns asset data from DIB for the specified motion asset ID.</td>
</tr>
<tr>
<td>GET /Event</td>
<td>Returns event data</td>
</tr>
<tr>
<td>GET /ConditionIndex/Types</td>
<td>Returns the available condition indexes</td>
</tr>
<tr>
<td>GET /ConditionIndex</td>
<td>Returns the condition index data for one or more assets</td>
</tr>
<tr>
<td>GET /Measurement/Types</td>
<td>Returns the list of measurement types</td>
</tr>
<tr>
<td>GET /Measurement</td>
<td>Returns historical data of an asset for one or more measurement types and defined time</td>
</tr>
<tr>
<td>GET /CBM/Summary</td>
<td>Returns the preventive maintenance planned date for the components of one or more assets</td>
</tr>
<tr>
<td>GET /CBM/DailyStatus</td>
<td>Returns the impact of environment and usage on the lifetime period of last 30 days for components of one or more assets</td>
</tr>
</tbody>
</table>
Further information

Product and service inquiries
Address any inquiries about the product to your local ABB representative, quoting the type designation and serial number of the unit in question. A listing of ABB sales, support and service contacts can be found by navigating to www.abb.com/searchchannels.

Product training
For information on ABB product training, navigate to new.abb.com/service/training.

Providing feedback on ABB manuals
Your comments on our manuals are welcome. Navigate to new.abb.com/drives/manuals-feedback-form.

Document library on the Internet
You can find manuals and other product documents in PDF format on the Internet at www.abb.com/drives/documents.