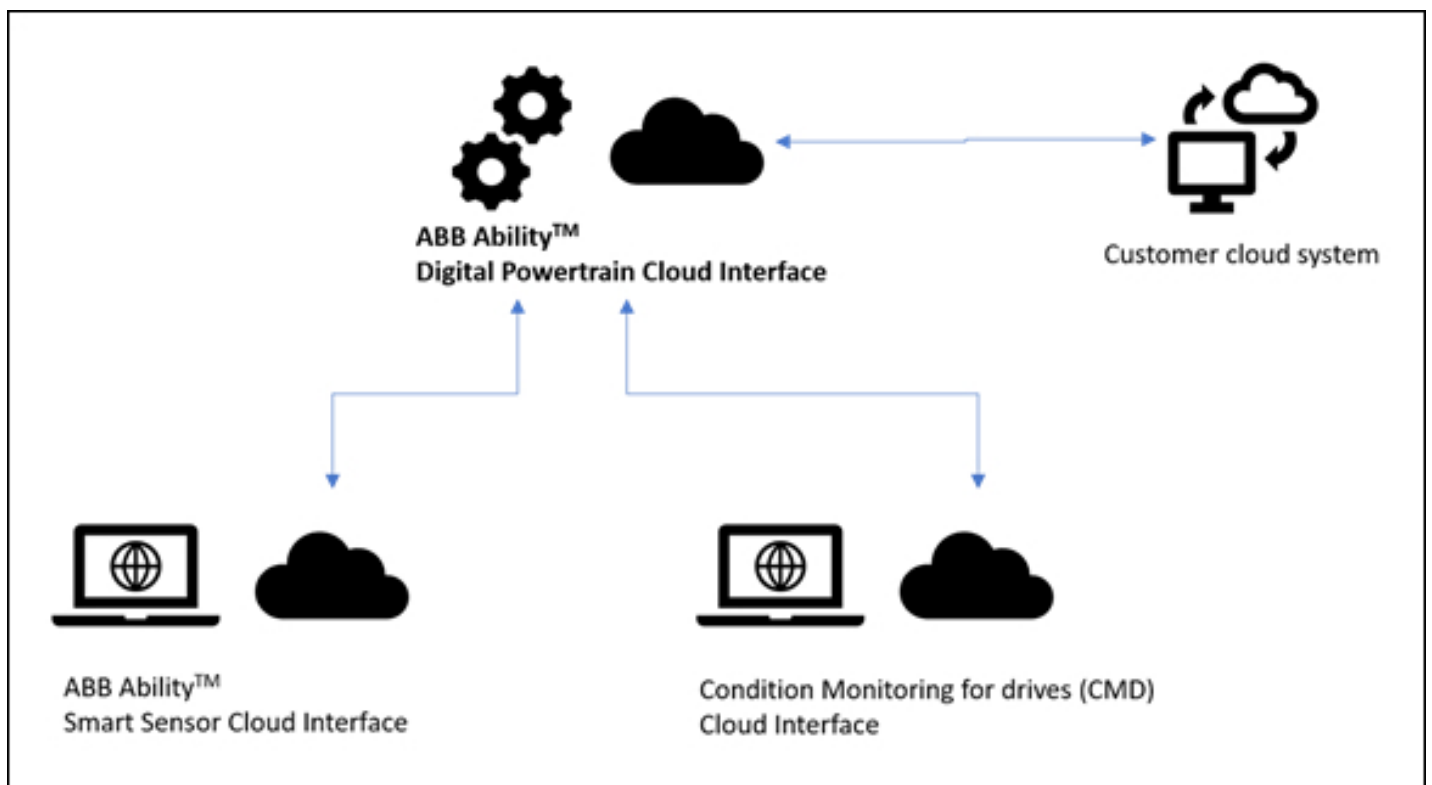


ABB DIGITAL SERVICES

Cloud Interface for ABB Ability™ Condition Monitoring for powertrains

User guide



Cloud Interface for ABB Ability™ Condition Monitoring for powertrains

User guide

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1

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

Document	Code (English)
Cloud Interface for ABB Ability™ Condition Monitoring for powertrains user guide	3AXD50000603152
Cloud Interface for ABB Ability™ Condition Monitoring for powertrains API guide	3AXD50000600670
Cloud Interface for ABB Ability™ Condition Monitoring for powertrains reference guide	3AXD50000614936
Cybersecurity for ABB drives Technical guide	3AXD10000492137
ABB Ability™ Smart Sensor user guide	9AKK107045A8954

Terms and abbreviations

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

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Overview

Contents of this chapter

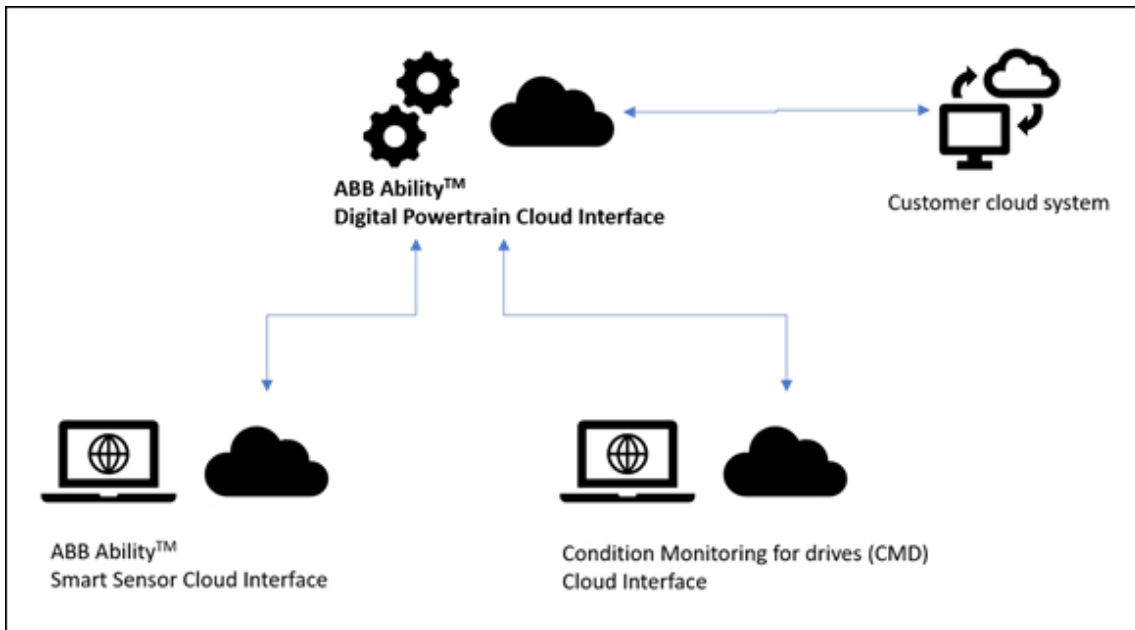
This chapter gives an overview of the Cloud Interface for ABB Ability™ Condition Monitoring for powertrains.

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.

Block diagram





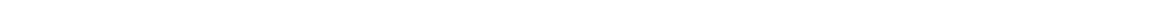
Accessing the Cloud Interface

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.



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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.

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Use cases

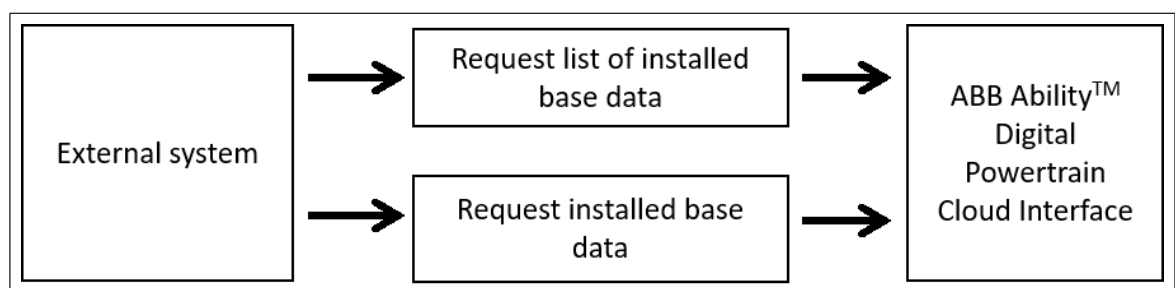
Contents of this chapter

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



■ Requested data

Requested data	Description
List of Installed Base data	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.
Detailed asset data for a specific asset ID	Provides asset data for the requested asset ID.

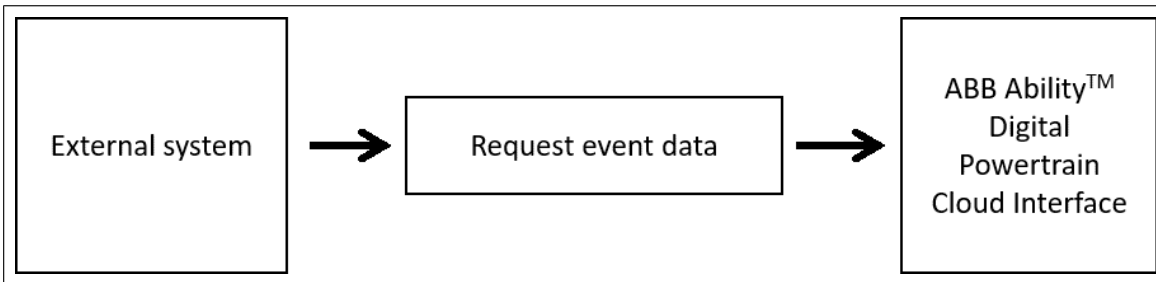
Use case 2: Request event data

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



■ Requested data

Requested data	Description
Alert and alarm notifications	Provides a list of notifications or events. The notifications apply only for the assets of authenticated users.
Maintenance events	Provides events or notifications for a maintenance intervention.
Close an alert or/and an alarm	Provides events or notifications resolved via Cloud Interface.

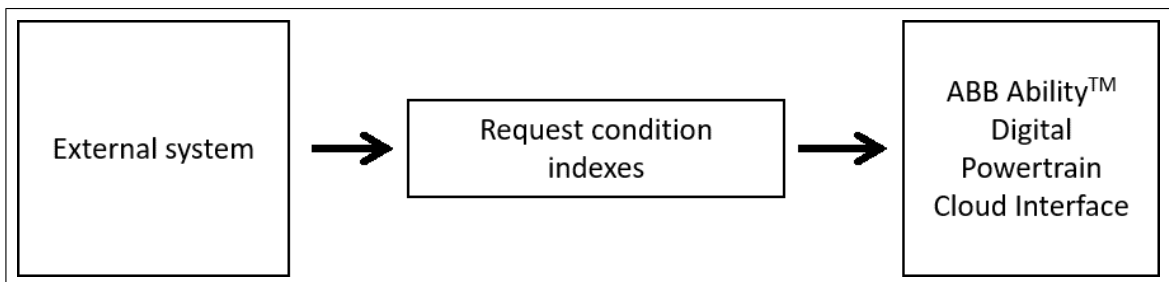
Use case 3: Request condition indexes of an asset

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



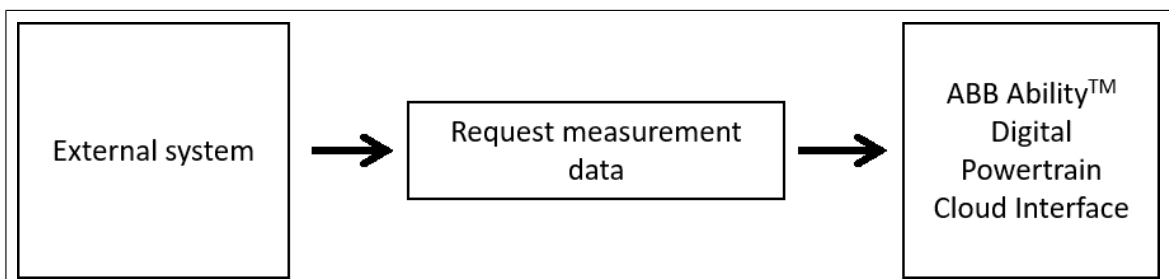
■ Requested data

Requested data	Description
Availability	Indicates the availability of the asset.
Environment	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.
Reliability	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).
Stress	Indicates the load and performance of the asset, for example, current power of the motor in relation to the maximum power.

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

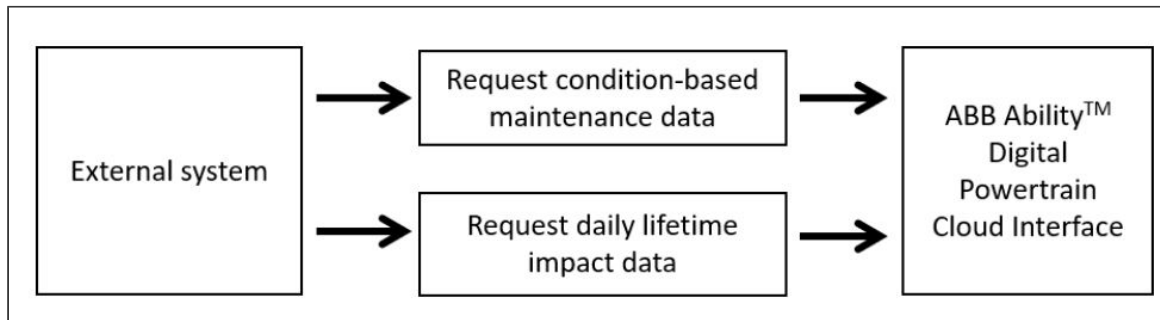


Use case 5: Request predictive maintenance data of an asset

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



■ Requested data

Requested data	Description
Summary	Provides summary of preventive maintenance data (eg. commissioning date, end date of expected lifetime, preventive maintenance date).
Status	Provides information on the three levels (high, medium, low) that impact the environmental and usage circumstances on the lifetime of the component.

Commands

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

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

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.



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