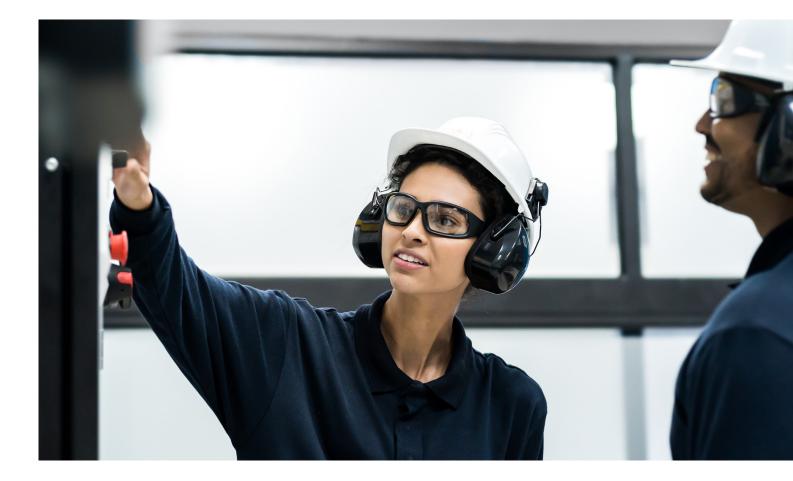


ABB Power Care Customer Support Agreements

LOW AND MEDIUM VOLTAGE SERVICE



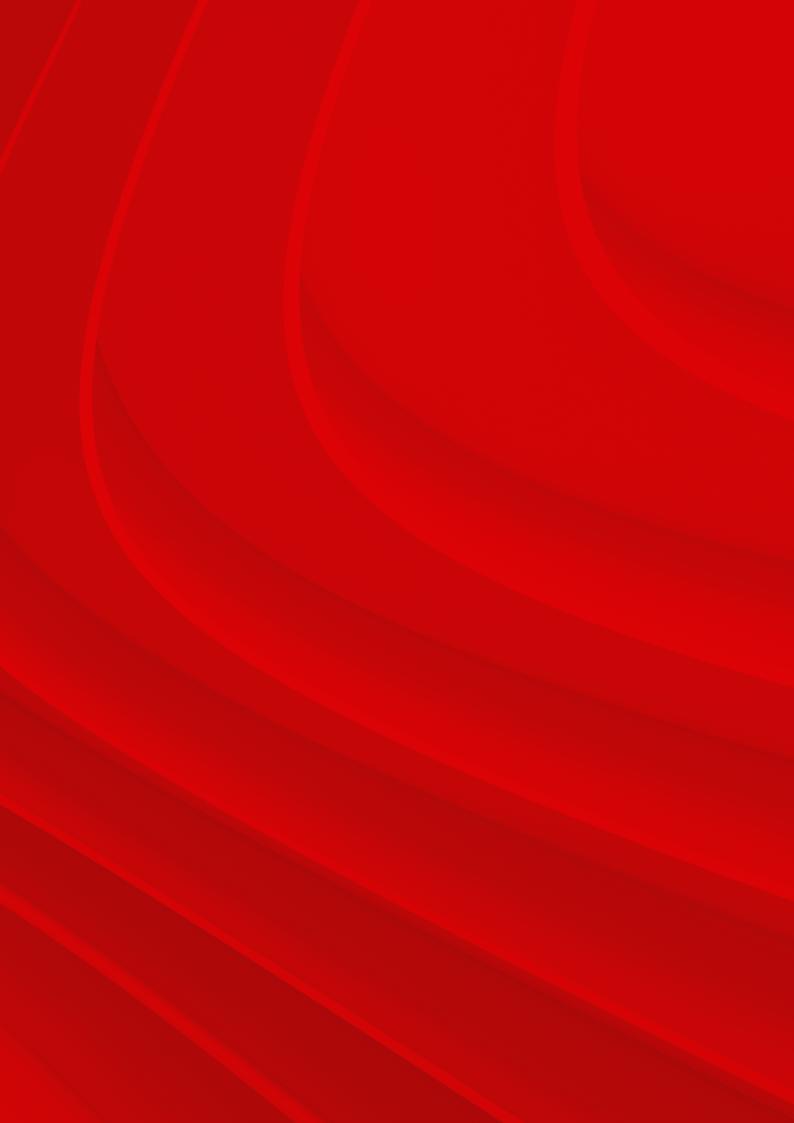


Table of contents

04	ABB Power Care
06 -07	The basis of the entire electrification system
08 -09	The gateway to your Power Care agreement
10 -11	Skills development services
12 –13	Emergency maintenance ser- vices
14 -1	Diagnosis and condition assessment services
16 -17	Self-maintenance services
18 –19	Delivered maintenance services

ABB Power Care

A typical agreement for a power consuming customer in the industry segment may cover elements such as asset condition and risk assessments or the installation of more advanced monitoring systems for condition based maintenance. Other services ABB offers include training for site operators, on-call support for emergency situations and maintenance of protection and control equipment. Also, servicing and maintenance of various devices can be included to give the user many years of trouble free operation. An example of a Power Care agreement may include ABB support services such as remote technical support, on-line access to technical data of the installed equipment, instant access to product installation and operational manuals, training for equipment maintainers on site, etc.



The basis of the entire electrification system

Competency services develop and maintain know-how and practical skills of your personnel. Product and application training aims to provide all participants with the necessary skills and knowledge of ABB equipment while coaching services help maintenance managers set up a strategy for continuous development of personnel skills.

We provide you with rapid support in emergency situations. Single point of contact introduces a simplified process for handling telephone support while technical support and call-out support ensure the response times that were agreed upon. On site essential spare parts management can be included as well.

You can minimize risks of failure and unsafe operating conditions by understanding the condition of your equipment. This is achieved through periodic, technical assessments, and continuous, real-time condition monitoring services.

Services can help your self-maintenance activities. Gain access to premium ABB resources such as troubleshooting wizards, product documentation and other records of your installation.

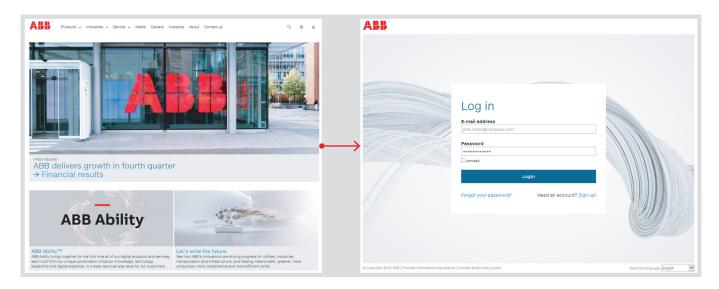
Keep your assets in optimal and safe operating conditions. Leverage on ABB's engineering and onsite expertise to ensure your assets are periodically maintained and that all components retain their intended functionalities. The Power Care matrix consists of five service areas and four service levels. Each service area covers critical operational needs, while the levels define the depth of expertise support.

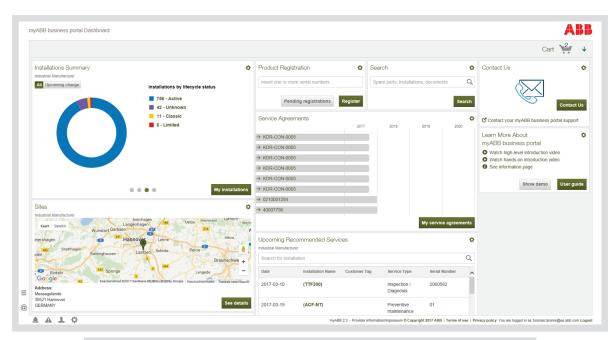
ABB Power Care	Entry level	Level 1	Level 2	Level 3
Skills Development Services	Product Training List	Product Training	Application Training	Coaching Services
Emergency Maintenance Services	Single Point of Contact	Technical Support with agreed response time	Call-out Support with agreed response time	Spare Parts Assessment and Management
Diagnosis and Condition Assessment Services	Documentation of Installed Base and Preliminary Survey	Asset Condition and Risk Assessment	Asset Monitoring	Remote Asset Monitoring
Self-Maintenance Services	Installed Base Life Cycle Status Report	Manuals and Instructions On-line	On-line Support for Self-maintenance	File Storage
Delivered Maintenance Services	Periodic Technical Assessment	Product Services	Advanced Product Services	Full Engineering Services

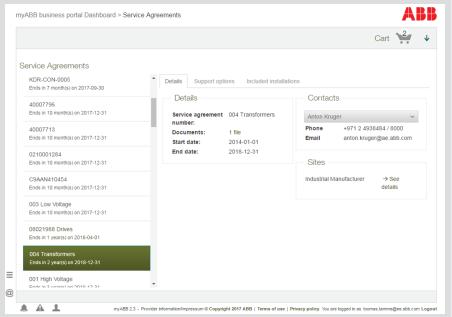
The gateway to your Power Care agreement

Manage all your assets in one place. Your Power Care portal is a secure web service personalized to your Power Care agreement for your electricification system.

Access the details of your installation, track your maintenance activities, get updates on ABB events, industry news, contact ABB. All through one portal. As latest cyber security principles were considered throughout the portal development, you can be sure no unauthorized person gets to your installations' data and maintenance records published there. Your data are safe, protected by strict cyber security rules in ABB Data Centers.







Search for insta	llation				С
Date	Installation Name	Customer Tag	Service Type	Serial Number	
2017-03-10	(TTF300)		Inspection / Diagnosis	2060582	
2017-03-19	(ACF-NT)		Preventive maintenance & calibration	01	
2017-04-25	(TTF300)		Inspection /	6110894	

Skills development services

Entry level

Product Training List

ABB offers a comprehensive list of e-learning and classroom training courses on switchgear, breakers and protection relays and other low voltage and medium voltage products matching the customer installed base. The list includes particular terms and conditions for customers with the agreement and is updated annually with new courses available. The list is accessible on the Power Care portal.

Level 1

Product Training

ABB offers classroom lessons and webinars covering both the theoretical and practical aspects of the ABB equipment installed in your electrification system. The lessons are handled by certified ABB trainers and participants acquire the necessary skills and knowledge in ABB equipment and software to optimize operation and maintenance of your ABB equipment.

With this service, participants can gain access to e-learning and webinar modules, or reserve training days in ABB University's Training Centers.



11

Level 2

1

Application Training

Application training aims to provide you with the competency to optimize product performance according to their specific functions and applications. Experienced ABB trainers customize training topics specific to your plant requirements, considering the best practices on your equipment and troubleshooting methodologies.

Level 3

4

Coaching Services

ABB coaching services help customer maintenance managers set up a strategy for maintaining personnel skills development. Coaching service programs are also delivered onthe-job at customer facilities, where an ABB Service representative works with the customer's personnel through their typical daily routines to find the skill levels and gaps in personnel skills.

With the coaching services module you can either reserve a certain number of weeks for your assessment and coaching or your field engineer can be led through a training path on-line, with ABB monitoring each step.

Emergency maintenance services

Entry level

Single Point of Contact

The support agreement introduces a simplified process for call handling. Depending on your agreement, this could come in the form of an email, phone number, or the web portal. The single point of contact ensures that your calls to ABB are received and channeled in the appropriate manner and agreed rates and Terms and Conditions are automatically applied to ABB support actions.

Level 1

Technical Support with Agreed Response Time

Technical support is available 24/7, 24/5, 8/7 or 8/5, to suit your requirements. Once your call is received by the support line, the technical support team will respond to your query within the agreed time frame. Benefits of this service include help in identification of the causes of equipment malfunction, definition of troubleshooting actions and remedy plans.

13

Level 2

Call-out Support with Agreed Response Time

Efficiently identify and remedy malfunctions. This service enables you to have on-site assistance from ABB service specialists for the equipment covered in your Power Care service agreement. Upon receiving your call an ABB specialist is mobilized and arrives on your plant within the agreed time to carry out troubleshooting and remedy actions.

Level 3

 \rightarrow

Spare Parts Assessment and Management

Have the appropriate stock of spare parts for when you most need it. An ABB specialist studies your installation. Through statistics and experience, he/she will propose a list of spares and consumables that you should keep available. Depending on your agreement, ABB can also manage the inventory for you - both on and off your site.



Diagnosis and condition assessment services

Entry level

Documentation of Installed Base and Preliminary Survey

Manage your maintenance activities in one portal. An ABB specialist visits your facility to document the equipment installed on your site and visually assesses its operating and ambient conditions. Where applicable, you will also be provided with suggestions for improvement. The equipment information gathered is populated into the Power Care portal which forms the common platform for both you and ABB to track maintenance actions connected to your Power Care agreement.

Level 1

Asset Condition and Risk Assessment

Effectively manage your maintenance program. An ABB service specialist conducts an in-depth analysis of your assets included in the agreement that includes equipment tests and operator interviews. The data is merged with ABB's proprietary switchgear risk profile analysis and maintenance history. The outcome is a list of recommended maintenance actions prioritized to minimize risk exposure and maximize benefits to the system.



Level 2

Asset Monitoring

The asset monitoring service introduces local monitoring of equipment conditions, alarms, events and performance trends. This service allows for condition-based maintenance for ABB products and systems. Maintenance is carried out when monitored indicators signal that the equipment is deteriorating and that there is an increase in failure probability. This strategy, in the long term, allows a reduction in the costs associated with maintenance and minimizes the occurrence of serious faults, thus optimizing available economic resource management.

Diagnostic information come from various sources including intelligent electronic devices, smart circuit breakers, specific sensors and integrated diagnostic systems.

Level 3

Remote Asset Monitoring

The remote asset monitoring service adds remote supervision and ABB expert services to the asset monitoring service. It allows all the circuit breaker diagnostic information to be collected in one place and enables ABB experts to analyze the data and define appropriate maintenance actions at the right time for each asset. With this service, maintenance is planned only when it is required, reducing the need for purely time based maintenance activities and guaranteeing high uptime and immediate response.

The operations team can follow up on the data or actively participate in defining the maintenance plan via web portal.

Self-maintenance services

Entry level

Installed Base Life Cycle Status Report

This service package includes a yearly update of the life cycle status report for the ABB electrical equipment covered by the Support Agreement. The report describes the life cycle phase of all equipment from your installed base, which is important information for selecting a suitable maintenance strategy, spare part supplies or retrofitting solutions for your equipment.

Level 1

 \rightarrow

Manuals and Instructions On-line

This service provides access to premium technical information and application advice for ABB electrical equipment users through a web-based service that is linked to the Power Care portal.



Level 2

On-line Support for Self-maintenance

On-line support for self-maintenance is an advanced collaboration support service which provides on-line chat and conferencing between customers and ABB engineers or the use of web troubleshooting tools. With this service customer's authorized users receive an account for ABB chat and conferencing community and they can contact ABB with technical and contractual queries. The on-line conferencing provides numerous ways of visualizing ideas and technical explanations that a telephone contact cannot offer.

Troubleshooting tools are at your disposal. Gain access to ABB's premium troubleshooting tools through the Power Care portal. This service allows you to independently troubleshoot and solve problems with your breakers, without first having to contact ABB.

Level 3

File Storage

Store all your asset related documents in one place. As the place to manage your Power Care agreement, it is also the place where you can find all other documents pertaining to your equipment. Examples include switchgear drawings, wiring diagrams, electronic configuration files etc.



Delivered maintenance services

Entry level •

Periodic Technical Assessment

Identify non-optimal conditions while equipment is in service. Using hand held testers like thermographic camera or partial discharge detectors, ABB technician can refine the asset condition assessment results or asset monitoring feedback pinpointing the areas of interest for preventive maintenance.

Level 1

Product Services

ABB field service engineers provide inspection and routine check on main switchgear components like breakers and relays. This service allows to get an updated picture of the equipment condition and to plan the next actions accordingly.



Level 2 •

Advanced Product Services

ABB field service engineers carry out specific maintenance programs on main switchgear components like breakers and relays. ABB combines ordinary and extraordinary maintenance activities into a full-comprehensive program, keeping your assets at maximum reliability.

Level 3

 \rightarrow

Full Switchgear Engineering Services

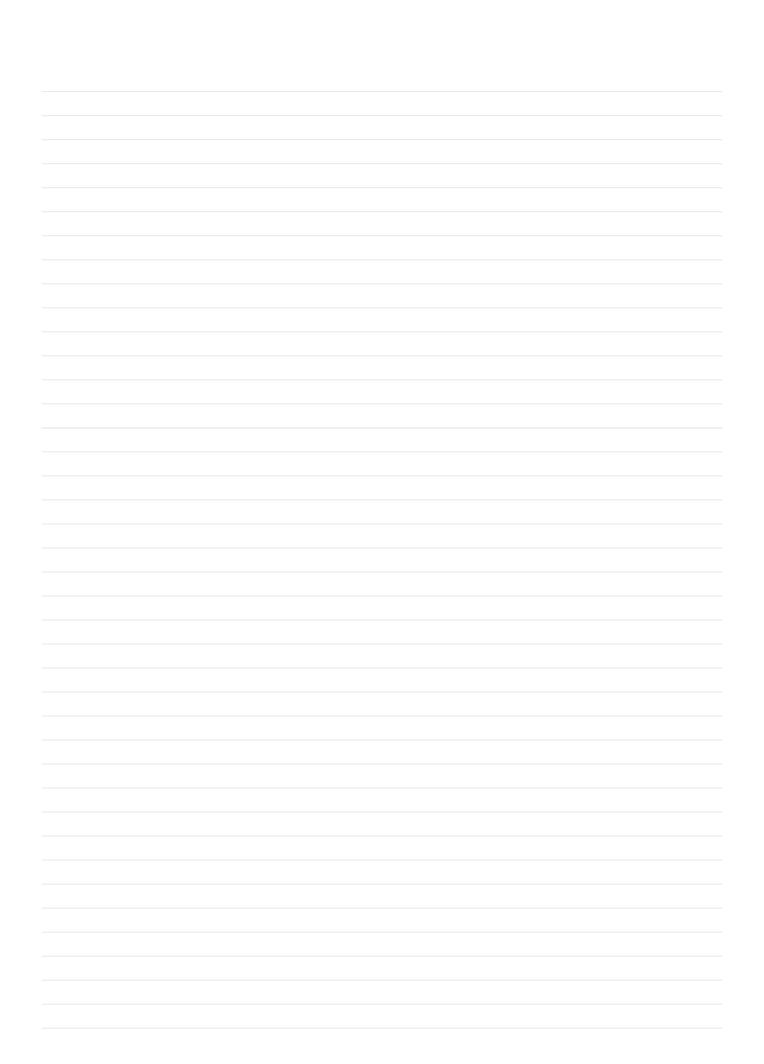
ABB provides background engineering and manpower for corrective, condition based and preventive maintenance on complete switchgear from your installed base. The actions are made to match the original function specifications, based on which the equipment was manufactured and commissioned.



Notes

Notes	

_



Additional information

We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB AG does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB AG.





For more information please contact:

.....

:....i

Contact ABB: www.abb.com/ contact-centers

More information: www.abb.com/productguide