

Upgrades and replacements for motor and generator control panels

Investing in future availability, reliability and functionality



01 ABB control panels MCP/GCP500 (left), MCP300 (middle) and MCP400 (right)

Control panels

Motor control panels (MCPs) and generator control panels (GCPs) provide control and protection for synchronous motors and generators. MCPs and GCPs generally cover:

- Excitation equipment
- Control functions
- Protection functions
- Communication interface
- Start logic system

Aging components, future functionality

While the components used in control panels will inevitably age and degrade, advances in electronics also mean that a panel's functionality can evolve faster than traditional motors and generators. It is important, therefore, to consider upgrading or replacing a control panel to retain the highest safety, performance and reliability while avoiding a lack of spare parts and technical support.

A control panel is a critical element in synchronous motor and generator applications. Yet, a control panel's electronic components degrade faster than mechanical components like motors and generators, meaning that an existing control panel might not be operating at its optimum performance. It is important to plan for an upgrade or replacement at least once during a motor's and generator's life.

Upgrade or replace?

Whether to upgrade or replace a control panel depends on various factors, such as impact on production downtime, required functionality and cost implications. ABB helps you to select the optimal solution for your application.

Control panel upgrade

An upgrade is the ideal solution if time is critical and downtime has to be kept to an absolute minimum, and if the overall condition of the existing cabinet is good.

Delivery and installation of upgrade kits is rapid – often within hours/days – and sees main cabinet components replaced with the latest design. This extends the operational efficiency and performance of the application by up to 15 years. The upgrade ensures the availability of spare parts and technical support and can bring new features such as remote support.

Upgrades are available for the MCP300 and MCP/GCP500.

	Active	Classic	Limited	Obsolete
	Full range of life-cycle services and support		Limited range of life-cycle services and support	Replacement and end-of-life services
Product	Product is in the active sales and manufacturing phase. It is recommended to have critical spares on site.	Serial production has ceased. Product may be available for plant extensions, as a spare part or for installed base renewal.	Product is no longer available. It is recommended to upgrade or replace it with a new Active phase product.	Product is no longer available. It is recommended to replace it with a new Active phase product.
Services	Full range of life-cycle services is available.	Full range of life-cycle services is available. Product enhancements may be available through upgrade and retrofit solutions.	Limited range of life-cycle services is available. Spare parts availability is limited.	Support is not guaranteed.

— 01 ABB's four-phase life-cycle management model provides a valuable tool to optimize asset management. The life-cycle phases detail the level of service and support available for the products.

Benefits of a control panel upgrade

- Increased reliability and operational availability
- Rapid delivery and installation for minimum downtime
- Minimized investment cost; possibility to utilize OPEX budget
- Full factory support for upgraded components
- Operational security for the next 10 - 15 years of operation
- Possibility to add new functionality such as remote support

Control panel replacement

A control panel replacement is the preferred solution if the control panel is at the end of its life cycle or new functionality and the latest technology would enhance the application.

While replacement control panels can take a few days to install, the fact they are fully tested and designed to match existing requirements, helps speed up the seamless interface with the existing application, thereby minimizing downtime.

Benefits of a new control panel

- Increased reliability and operational uptime
- Enhanced control design and functionality optimized for your application
- State-of-the-art customized technology
- Full factory support
- Complete range of life-cycle services
- Guaranteed product support of complete system
- Completely new control cabinet with an estimated lifetime of 15 - 20 years

Control panels

ABB offers three control panel series: the MCP300 and MCP400 series for HS/AMZ synchronous motors and the MCP/GCP500 series for GBA/AMS synchronous motors and generators. These products can also be offered for third party machines.

They comprise the latest motor/generator control technology which delivers precise control, protection and clear user supervision. Continuous design upgrades ensure that the control panels remain competitive and up to date.

The perfect fit for every installation

In addition to the standard functions and features, a wide range of options are available to meet customer requirements and provide the optimal solution for each installation.

MCP400 series

ABB offers two standard versions of the MCP400 series.

MCP410

A classic single-channel MCP that meets the basic needs of motor control applications that can be fitted with a DC/AC exciter.

MCP430

A dual channel MCP with two automatic voltage regulators (AVRs) to optimize availability. This dual-AVR arrangement means that a single AVR related fault is immediately cleared and costly downtime is avoided.

Both versions feature the latest motor control technology for precise control and protection, a touch screen control panel for easy access to operating data and remote connection to ABB experts for fast support and troubleshooting.

MCP/GCP500 series

The MCP/GCP500 series can be used for motors and generators. The series is PLC based to allow high flexibility and simplify the integration of the control panel into the plant control system.

Three standard versions are available for the MCP/GCP500 series.

MCP510/GCP Basic

Meets the basic needs of motor and generator start logic and control functionality.

MCP530/GCP Standard

Suited to a wide range of applications and customer needs. It includes numerous functions and features as standard, with a wide range of additional options for protection and excitation control functions available. Modern control equipment allows integration with other control systems.

MCP570/GCP Advanced

Features the functionality of MCP530/GCP Standard. In addition, it includes a redundant PLC system, for highest possible availability. The redundant PLC system is in hot stand-by to take over the control immediately if a fault is detected in the main channel or if manually selected. This ensures a seamless operation of the synchronous motor/generator.

MCP400 series**GCP Advanced**

MCP300 series

ABB offers four standard versions of the MCP300 series.

MCP310

A classic single-channel MCP that meets the basic needs of motor control applications that can be fitted with a DC/AC exciter.

MCP330

A dual channel MCP with two automatic voltage regulators (AVRs) to optimize availability. This dual-AVR arrangement means that a single AVR related fault is immediately cleared and costly downtime is avoided.

MCP350

Suitable for synchronous motors that are started by variable-speed drives (VSDs). VSD start may be needed when the network is weak or if the load or its inertia is high.

MCP370

Suitable when synchronous motors are fitted with brushes and slip rings, typically if very fast changes in excitation are required. Starting normally takes place direct online (DOL), but any starting method can be used with brush excitation if needed.

MCP300 series



For more information, please contact your local ABB representative or visit:

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