

SERVICE NOTE

# Upgrades and replacements of motor control panels

An investment in availability, reliability and functionality



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01 ABB motor control panels MCP 500 series (left) and MCP 300 series (right)

## Motor control panels

Motor control panels (MCPs) provide control and protection functions for synchronous motors.

MCPs generally include:

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

## Aging components, future functionality

MCPs feature electronic components that inevitably age and degrade over time. To avoid disrupting motor operation through component failure, it is essential that MCPs have a stock of spares readily available from the supplier. Furthermore, advances in electronics brings updated functionality to MCPs, thereby making upgrades more attractive.

## MCP replacements

Through its decades of experience in excitation systems for synchronous motors, ABB is renowned for its highly reliable MCPs. They are carefully designed with high-quality components ensuring high total availability and reliability.

A motor control panel (MCP) is a critical element in synchronous motor applications. Yet, the MCP's electronic components degrade faster than mechanical components like motors. Electronics technology also evolves at a fast pace, meaning that an existing MCP might not be operating at its optimum performance. That's why it is important to plan for a replacement or upgrade at least once during a motor's life.

MCPs can replace existing control systems, with ABB engineers ensuring that the design matches current requirements while seamlessly interfacing with the existing application. MCPs will be fully tested prior to delivery, minimizing downtime needed for installation and commissioning. The replacement can be completed in a few days, preferably during a planned production stop.

## Benefits of a new MCP

- Greater reliability
- Increased operational uptime
- Enhanced functionality
- State-of-the-art customized technology
- Full factory support
- Complete range of spare parts
- Includes evaluation of existing equipment design and adaptation to new system

	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
<b>Product</b>	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 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.
<b>Services</b>	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.

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01 ABB life cycle management model

**Product life cycle management model**

ABB’s four-phase product life cycle management model provides a valuable tool for customers seeking to optimize their asset management. The life cycle phases detail the level of service and support available for the product.

**MCP life cycle**

Advances in electronic components means that MCP functionality evolves at a faster rate than those of traditional mechanical devices like motors. Thus, the active life cycle phase of a MCP is considerably shorter than that of motors.

When a component’s active lifetime passes, the availability of spare parts and technical support quickly declines, eventually becoming unobtainable.

Therefore, to ensure continued safety, performance and reliability, ABB offers to upgrade or replace existing control equipment as it approaches the end of its life.

**Motor control panels for synchronous motors**

ABB offers two MCP series: the MCP 300 series for HS/AMZ synchronous motors and the MCP 500 series for GBA/AMS synchronous motors. They can also be offered for motors from other manufacturers.

Both series comprise the latest motor control technology which delivers precise control, protection and clear user supervision. Continuous design upgrades ensure that the MCPs 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.

The MCP 300 and MCP 500 series are supplied in standard dimensions. Customized dimensions can also be offered to match installation requirements.

**MCP 300 series**

ABB offers four standard versions of the MCP 300 series.

**MCP 310**

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

**MCP 330**

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.

**MCP 350**

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.

**MCP 370**

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.

**MCP 500 series**

Three standard versions are available for the MCP 500 series.

**MCP 510**

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

**MCP 530**

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 available. Modern control equipment allows integration with other control systems.

**MCP 570**

Features the functionality of the MCP 530 plus an integrated PC. This provides an advanced interface and high-resolution log functions for post-fault analysis and trend presentation of operational data. Remote communication is supported to enable remote technical support and assistance. Full redundancy can be supplied as an option for maximum availability.

**MCP 300 series****MCP 500 series**



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