

Condition monitoring solution for low voltage motors

Motors that let you know when it's time for a service

ABB's new condition monitoring solution connects low voltage (LV) motors with the twenty-first century. It monitors and provides vital motor performance intelligence that helps improve uptime, extend motor lifetimes, and increase machine performance and productivity. It connects motors with the Internet of Things, Services and People (IoTSP).



Condition monitoring for a plant's entire LV motor fleet

Up to now it has been too expensive to use permanently installed condition monitoring with LV motors. As a result most LV motors are simply run until they fail.

ABB's new solution enables almost all LV motors to be remotely monitored. Condition monitoring means that maintenance can be planned in advance, which reduces downtime and saves money. By producing status data for large numbers of motors, the solution also paves the way for plant-wide optimization of operations and energy consumption.

Smart sensors fitted to motors

Selected ranges of ABB LV motors will be factory fitted with smart sensor units as an option. The sensors can also be retrofitted on installed motors.

The external sensor monitors signals from the motor. The data are transferred using the units' built-in Bluetooth® via either the user's smartphone or an ABB gateway solution, over the internet, to a secure cloud-based server.

The server analyzes the data and produces meaningful information, which it sends directly to the user's smartphone or to a dedicated customer portal.

The intuitive interface includes a simple 'traffic light' display to give a quick overview of the plant's motors.

If the system detects a problem that needs attention, it sends an alert to the user's smartphone. From the portal the user can access trend data as well as data on run time and loads, enabling optimum maintenance planning.

Monitoring of key parameters

Key parameters that are regularly and accurately monitored are:

Health related information

- Rotor health
- Temperature
- Air gap eccentricity
- Cooling condition
- Bearing condition
- Overall vibration

Operating information

- Energy consumption (within 10%)
- Loading (power)
- Operating hours

Main benefits

- Increased motor uptime
- Longer motor lifetime
- Improved motor performance and productivity

By providing meaningful information on motor condition and performance, the service will enable users to plan their maintenance according to actual needs rather than on the basis of time intervals or operating hours alone. This will reduce maintenance costs and enable the plant to cut or even eliminate unplanned stops.

There are also opportunities to optimize motors' energy consumption – by combining data on the energy consumption levels of individual motors with plant operating information, it will be possible to formulate better loading strategies aimed at cutting energy costs.

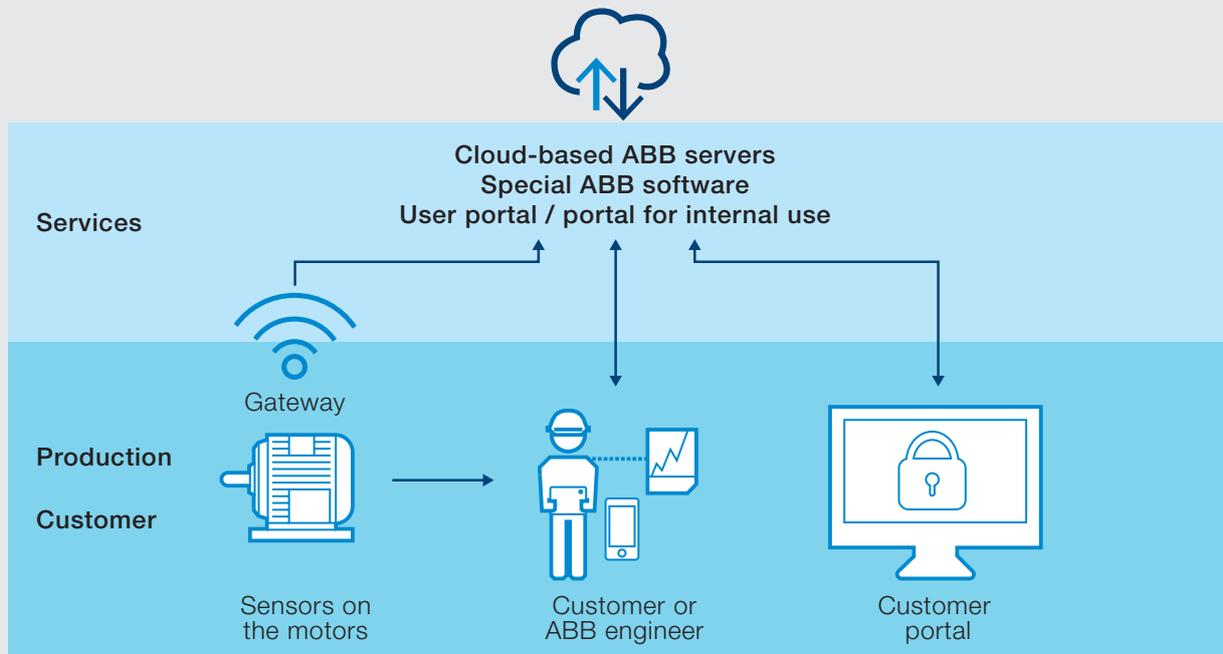
Taken together, condition and performance data could provide a useful basis for reducing the overall cost of motor ownership in process plants by cutting both the motors' cost of running as well as the risk and cost of not running.

	RED: critical issue – failure likely soon. Take action immediately or as soon as possible.
	YELLOW: operation can continue but the motor should be watched closely and serviced at the next available opportunity.
	GREEN: motor fine – operation can continue.

Simple traffic light display gives a quick overview of motor status. By drilling down the user can identify what triggered a yellow or red signal, e.g. bearing related data has exceeded preset limits.

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ABB's condition monitoring solution for LV motors. The smart sensor transmits data either via a smartphone or gateway solution to a secure ABB server.

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