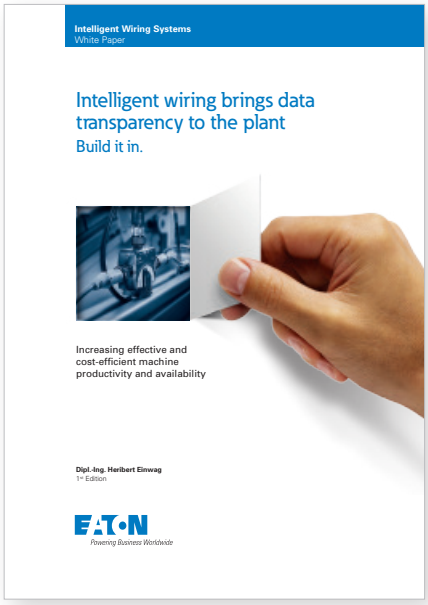
Intelligent Wiring for Systems
Executive Summary

Increasing effective and cost-efficient plant productivity and availability.

Build it in.



With ever-growing cost pressure and increasingly tougher competition, internationalization and globalization, plant operating costs come under the spotlight. This is because plants are in operation not just for a few years, but usually over a period of decades.

As a result, cost of downtime, maintenance and servicing quickly outweigh the initial outlay: over an observation period of ten years, operating costs are often found to be already five to ten times higher than procurement costs.

Please read the summary of the white paper on the next page.

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To give businesses the competitive edge, these operating costs must be kept to a minimum. Key to attaining this is predictive maintenance: data transparency of the plant at component level, enables quick and easy access to critical states and deviations from normal state, thus providing advanced warning of an imminent failure and ultimately avoiding downtime. Moreover, with more data, the performance of the plant can be optimized, which significantly reduces total operating costs, and productivity increased with better control and utilization of the motors.

In the white paper "Intelligent wiring brings transparency to the plant" Heribert Einwag, product manager at Eaton, describes how the level of data transparency can be raised by using an intelligent wiring and communication technology. This is not just status data for the more complex electronic components of the system, such as controls or drives, but also detailed information from motor starters, control and signalling devices, sensors or other field devices.

Traditionally, these 'simple' devices are not 'smart' as they cannot communicate up through the network. To enable these devices to communicate, often during a planned plant upgrade, they are retrofitted or replaced completely and are connected to the network either via point-to-point wiring or a fieldbus system – regardless of the chosen solution, each require significant investment yet only provide limited data transparency. The overall complexity of the system increases too with all the associate problems such as susceptibility to errors and installation effort.

An intelligent wiring and communication system at the device level provides an effective and cost-efficient solution to this problem. It does not require complex point-to-point wiring, nor does it need to be connected to the control system via expensive fieldbus circuitry.

The individual switching devices, sensors and actuators are connected via a single cable that supplies power and data communication simultaneously. Such a solution also includes communication modules that connect directly to the communication system on site. This takes on the acquisition and pre-processing of the data. They are inexpensive and compact, so that they can be used in the smallest units, such as pushbuttons or auxiliary switches.

Describing various real-world applications, the white paper demonstrates how such a system can be achieved with data transparency down to the smallest automation component. This cost-efficient technology also reduces effort for planning and commissioning, eases extensibility and allows trouble-free upgrades.

To learn how by adopting an intelligent wiring and communication system, operating costs can be cut significantly through predictive maintenance, the door to Industry 4.0 opened and system performance increased, please download the white paper here:

www.eaton.eu/en/iw/sys

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