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Remote carbon brush monitoring with first intelligent plug-and-play system

A carbon brush with built-in sensors, that enables maintenance staff to check brush condition at any time from a remote location, is introduced by Carbex.

The i-BRUSH system can be retrofitted to any existing installation. The system measures wear, temperature, humidity, voltage drop and current distribution in the brushes.

The information is uploaded to the cloud and can be displayed in any smartphone or PC. With knowledge of remaining brush life, future maintenance can be easily planned.

i-Brush is suitable for offshore as well as onshore applications. All grades of carbon brush are available with the i-Brush design.

“The carbon brushes are among the parts requiring most frequent maintenance in a wind power generator. Despite this, users have, until now, not been able to monitor brush condition remotely. This is something that we seek to rectify,” explains Joakim Hedlund, managing director of Carbex.

Brushes normally last 18 to 22 months, but abnormal conditions, such as mechanical or electrical issues elsewhere in the installation, can cause them to wear down within days. Excessive brush wear can damage the slip ring and even the generator.

The monitoring software lists all generators on a site. The generator closest to needing maintenance tops the list, enabling users to prioritise maintenance duties. Alarm levels can also be set. The user is notified with email or text message when an alarm is triggered. Carbex support staff can access the system for remote assistance.

The i-BRUSH is connected to an external control box. This is a plug-and-play unit that does not require electrical installation. It is powered by the inductance of any nearby AC or DC cable with a stable current. A simple clip around the cable is all that is required. The unit also has a rechargeable backup battery.

The control box contains a CPU, a 4G transmitter and an Ethernet connection. As well as using its internal alarm settings, the i-BRUSH system can be connected to an external system such as SCADA.

When combined with Carbex’ V-type brush holder with equalised spring pressure across the phases, the i-Brush results in a system with extremely low maintenance cost.

Caption: Carbon brushes can now be monitored remotely with the i-BRUSH system from Carbex

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