

CONDITION MONITORING FOR CRITICAL ROTATING EQUIPMENT

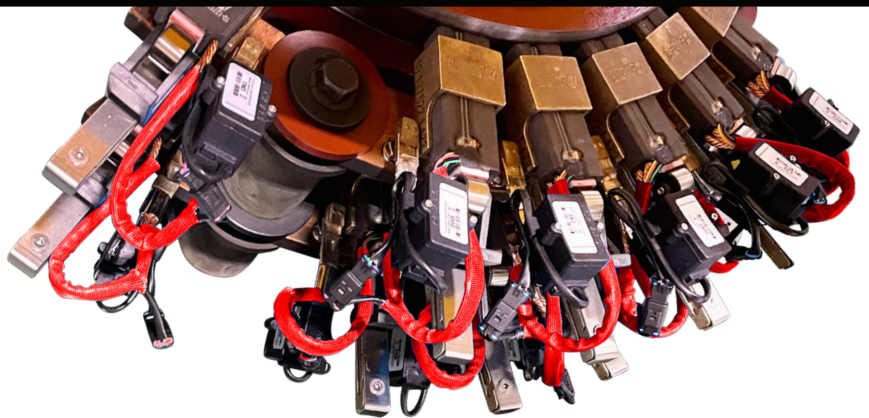


In Partnership with carbex
QUALITY FOR THE CORE

i-BRUSH[®]

CARBON BRUSH REMOTE MONITORING SYSTEM

**Prevent Failures &
Predict Maintenance
Needs with i-BRUSH**



Brush Sensor & Transmitter

The carbon brush provides a unique window into the health of your system. By continuously monitoring key brush operating parameters, the i-BRUSH system helps maintenance teams prevent catastrophic failures, improve safety and reliability, reduce maintenance costs, and extend carbon brush life.



HMI Display



i-BRUSH Main Unit

**Intelligent
Monitoring**

**Expert Application
Support**

Detect Developing Problems Early

i-BRUSH Measures Key Parameters

- Brush Wear
- Brush Temperature
- Brush Current
- Brush Current Density
- Ambient Temperature & Humidity
- Brush Vibration (i-BRUSH 2.0 Only)

These Measurements Help Identify

- Arcing
- Potential Flashover
- Abnormal Current Distribution (“Selective Action”)
- Broken Springs
- Improper Installation
- Slip Ring Degradation
- Fast Brush Wear
- And More

Easy to Install. Easy to Use.

The i-BRUSH:

- Can be retrofitted to any existing installations
- Fits most common brush holder/slip ring designs on the market
- Most brush grades & styles are available to fit the i-BRUSH design
- You can select and change the number of i-BRUSH brushes to fit your needs

Customize Alarms Sent to Your Email & Data Acquisition System

Customize alarm settings for all measured parameters. Advanced alerts in Core and 2.0 can be configured for 24-hour averages, wear rate, and more.

Easily Identify Trends with Charts

Instantly Gauge Brush System Status

With easy to interpret overview of system & individual brush health

Dashboard View for i-BRUSH 2.0 and Core

View of All Brushes with Color-Coded Squares

View of Selected Brush with Detailed Information



Three Models to Meet Your Needs

The i-BRUSH System Is Available in Three Configurations.

The system is designed to support all types of slip ring generators and motors and to integrate with various customer data interfaces.

	i-BRUSH Connect <i>Cloud-Based Remote Monitoring</i> Perfect for wind power or smaller remote hydro power stations.	i-BRUSH Core <i>Monitoring with Local or Plant Network HMI</i> Monitors brushes in generators and industrial motors.	i-BRUSH 2.0 <i>Enterprise Monitoring for Large Generators</i> For large generators used in gas/steam, hydro, and phase condenser applications.
Feature	i-BRUSH Connect	i-BRUSH Core	i-BRUSH 2.0
Single-Machine Monitoring	Included	Included	Included
Multi-Generator Monitoring	N/A	N/A	Optional
Brushes per Unit	Up to 100	Up to 100	100+
Transmitters	Battery	Battery	Battery-Free
User Interface	Carbex Cloud Dashboard	Plant Network/Local HMI	Plant Network/Local HMI
Dedicated HMI Display	N/A	Optional	Optional
Cabinet IP54	Optional	Included	Included
Data Storage	Cloud Based	Local	Local
Networking	Ethernet Optional: 4G/LTE router/ Wi-Fi (local network)	Ethernet Optional: 4G/LTE router/ Wi-Fi (local network)	Ethernet Optional: 4G/LTE router/ Wi-Fi (local network)
MODBUS Compatible	N/A	Optional	Optional
Vibration Measurement	N/A	N/A	Included
CARBVIB Vibration Analysis Tool	N/A	N/A	Optional

Advanced Monitoring Technology Pairs with Helwig's Industry-Leading Expertise

Helwig is trusted worldwide for our engineering expertise and application support. We bring decades of brush system knowledge to every application, supporting you from installation and alarm configuration through successful operation of your i-BRUSH system. As you monitor your i-BRUSH data, our application experts are available to help you interpret the results, understand their implications, and recommend system adjustments when appropriate. Together, this expertise helps maximize brush life, improve reliability, and optimize overall system performance.

How i-BRUSH Prevented a Catastrophic Failure

After the i-BRUSH was installed in a Vestas V80 1.8 MW turbine, the system detected dangerously high brush temperatures. An instant alarm was triggered: “High Brush Temperature” — allowing the operator to act immediately.

Thanks to i-BRUSH, the turbine was remotely stopped, and the root cause was quickly identified: a broken plastic inlet housing was misdirecting cooling air away from the slip rings and brushes. Even more alarming — the damaged housing had not been replaced during earlier repairs following a short circuit and fire.

Without i-BRUSH, this incident could have escalated into a serious failure or even another fire.

Instead, the customer avoided costly downtime, emergency repairs, and potential damage to the turbine.



Reduce
Downtime &
Maintenance



Increase
Reliability &
Safety



Easy
Retrofit

Common i-BRUSH Applications:

- Power Generation
 - Hydro
 - Wind
 - Traditional
- Manufacturing
- Mining
- Other Industrial Applications

* Not Currently Available for Commutators — Slip Rings Only



The i-BRUSH system was developed and is manufactured by our partner Carbex. Helwig is the exclusive North American distributor within key market segments.



Helwig Carbon Products, Inc. is the premier American manufacturer of carbon brushes, brush holders, spring assemblies, shaft grounding products, metal graphite brushes, and carbon graphite vanes, rotors, bushings, seals, segmented rings, and more.

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