

BSENS

Optimizing Transformer Efficiency with Precise Real-Time Bushing Insights

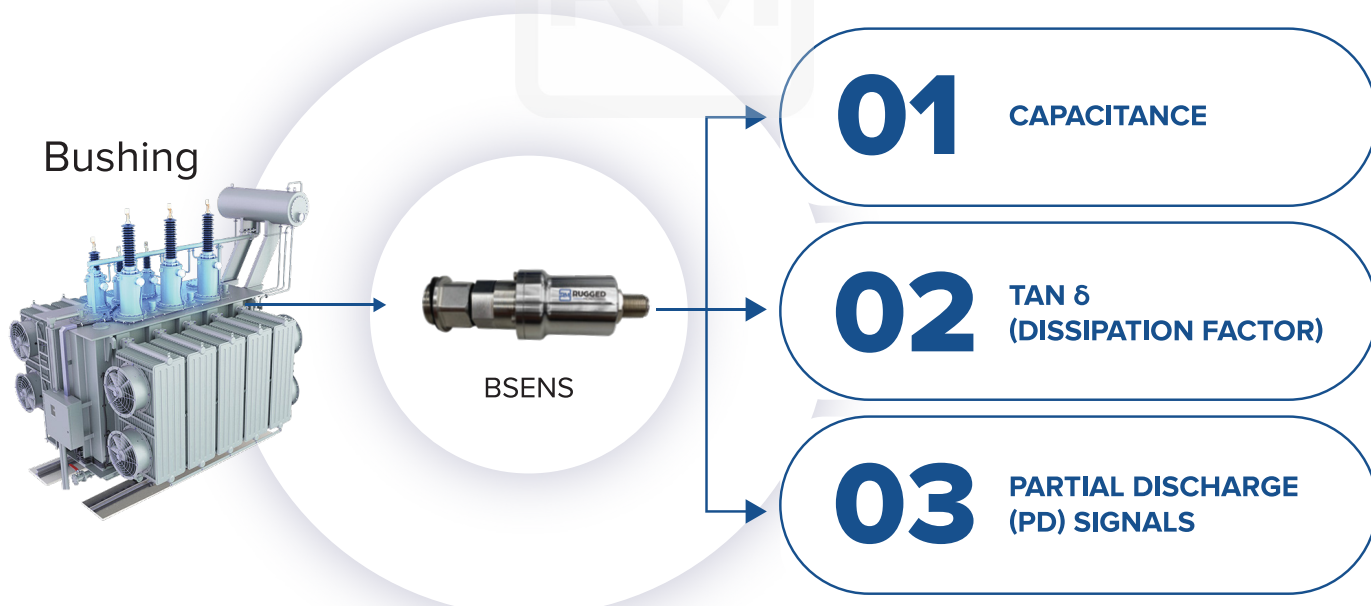


Our bushing sensor is engineered to provide real-time data on the health and performance of transformer bushings by detecting critical parameters such as leakage current, capacitance, and partial discharge, enabling early fault detection and prevention.

Bushing Failures can result from transient overvoltage, temperature variations, and moisture ingress, which can rapidly compromise the bushing insulation and potentially lead to catastrophic transformer failures.

Rugged Monitoring's BSENS IoT Sensor enables continuous online condition monitoring of transformer bushings through regular time-based diagnostics. Our system utilizes specialized bushing adaptors installed at the bushing test or voltage tap to measure leakage current. This current, influenced by the phase ground voltage and the impedance of bushing insulation, flows through the adaptors to the ground—any imbalance in insulation impedance results in variations in leakage current, signaling potential issues.

» Key Outputs Provided by BSENS:



BSENS monitors leakage current in the range of 1mA to 200mA and detects high-frequency (HF) signals between 100 kHz and 25 MHz for precise partial discharge monitoring.

With a portfolio of over 45+ bushing tap adaptors, Rugged Monitoring ensures compatibility with a wide range of bushings, enabling faster commissioning. Our standard IoT Sensors are designed to support a wide variety of bushings across voltage, making BSENS a versatile and reliable solution for bushing condition monitoring in critical applications.

» Features



ENGINEERED FOR RELIABILITY

Built to withstand and perform flawlessly in the most demanding environments.



COMPREHENSIVE CURRENT ANALYSIS

Accurately measures fundamental harmonic leakage currents for deeper insights.



ACTIONABLE INSIGHTS

Delivers highly accurate bushing condition analyses to enhance decision-making.



PRECISION SIGNAL DETECTION

Captures high-frequency partial discharge signals with exceptional clarity.



TAILORED FOR VERSATILITY

Custom-designed to accommodate a variety of bushing tap configurations seamlessly.



ADVANCED MONITORING

Supports simultaneous monitoring of up to six bushings on three-phase transformers.



INDUSTRY-LEADING ACCURACY

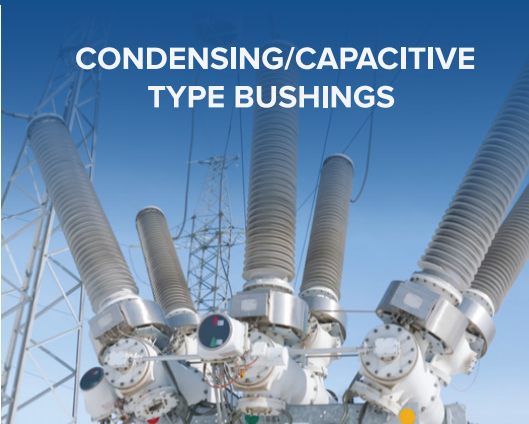
Leverages proven, industry-standard methodologies for unmatched precision.

» Benefits

- ✓ Simplified System Integration
- ✓ Supports High Voltage Applications
- ✓ Wide Measurement Range
- ✓ Early fault detection
- ✓ High Compatibility
- ✓ Reliable Diagnostics

» Applications

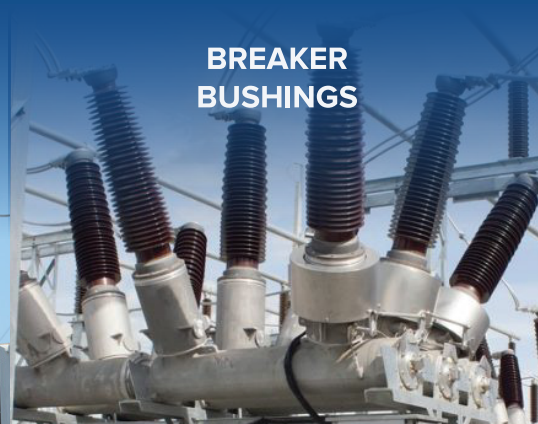
CONDENSING/CAPACITIVE TYPE BUSHINGS



TRANSFORMER BUSHINGS



BREAKER BUSHINGS

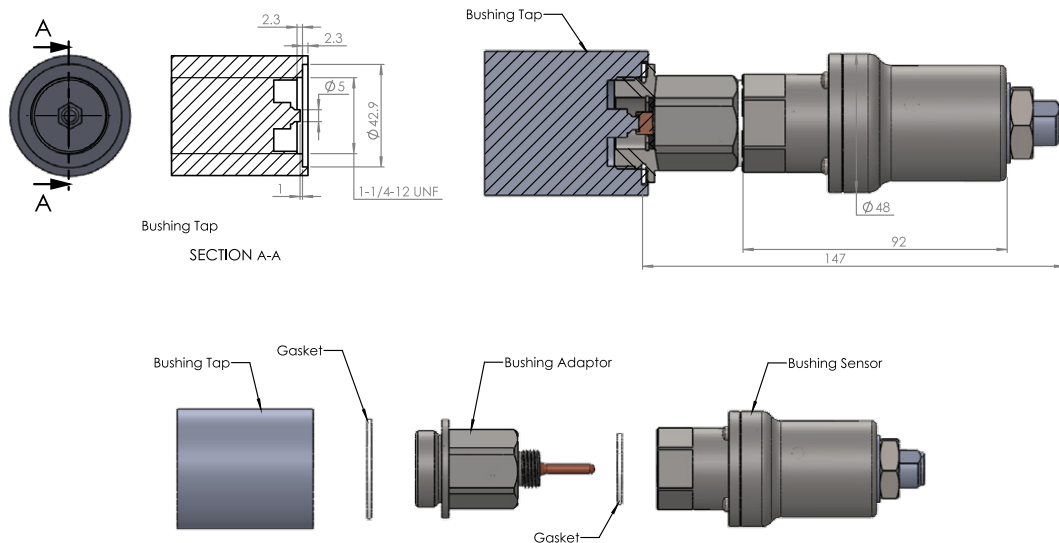


» Technical Specifications

ELECTRICAL PARAMETERS	Measurement Parameters	Leakage Current = 1mA to 200mA (Accuracy ± in%) Reading
		Power factor/Dissipation factor = 0 to 100% ± 0.045% absolute
		Capacitance = 10 to 1000 pF (± 1.0% of reading)
		Phase Angle of imbalance Current = 0 to 360° (± 1.0% of reading)
		Partial Discharge: 100 kHz to 25 MHz
	Signal Cable	RG223
	Maximum impulse 8/20µs surge current	20kA, 10 operations
	Maximum short-circuit power frequency current (RMS)	130 Arms, 11 cycles 50/60 Hz
	Maximum output voltage at OUT connector limited by surge protection	< 37 V
	Bushing Tap Earthing protection	Double Protection against any loss to the grounding connection
MECHANICAL SPECIFICAITONS		Stainless Steel, Brass nickel-plated, Polyoxymethylene (POM), Nitrile butadiene rubber (NBR)
ENVIRONMENTAL SPECIFICATIONS	Vibration Testing (IEC 60068 -2-6)	20 sweeps of 9G force in 6 degree of freedom
	Ingress Protection (IP) (IEC 60529)	IP 66 (Protection against moisture ingress)
	Operating Temperature	-40°C to + 95°C
	Storage Temperature	-40°C to + 85°C
	Humidity	95% Relative Humidity



» Product Drawing



» Ordering Code

Sensor Type

L = Leakage current
P = Partial Discharge
LT = Leakage Current With Temp. Sensor
PT = Partial Discharge With Temp. Sensor

Bushing Model

GOE = ABB GOE
GOH = ABB GOH
IEEE = ABB Alamo
IEEEB = ABB Alamo (adjustable pin)
DTOI = Moser Glasser
HLJM = ABB Macafil
PCOR = Hubble
ALST = Alstom
BHEL = BHEL
CGCB = CGCB
HSP = HSP

GOB = GOB
LCRJA = Standard Version
LCRJB = Slim Version
LCRJC = Tapper threads (NPT)
TNCHA = Trench 167 mm long
TNCHB = Trench 212 mm long
TNCHC = Trench L Shape
GE = GE Version
JZH = Jiangsu Zhida

B s e n s

z z

y

x w

Sensor Connector
2 = N Type

Bushing Sensor

Model of Sensor

(z = 0 to 9)
0 = PCB
1 = GDT only
2 = PCB R02

Sensor Material

2 = Stainless Steel 304
3 = Stainless Steel 316 (CX environment)

CERTIFICATIONS



ISO 9001



ISO 14001



OHSAS
18001



Lloyd's
Register



Atex
Certification



NIST
Certification

Canada

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