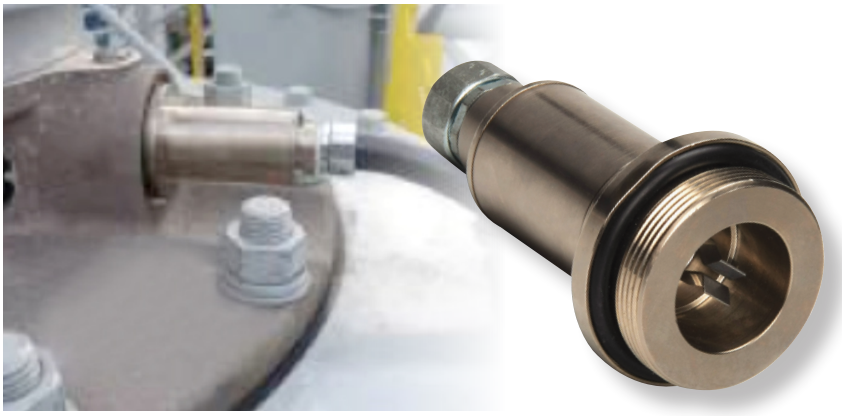
DYNAMIC RATINGS

Bushing Sensors | Type BAU and BAU-HVCT



Type BAU Bushing Sensors are the industry's ONLY Bushing Sensor that provides three levels of protection. In addition to comprehensive protection, BAU sensors provide both power frequency and high frequency signals used by Dynamic Ratings, Monitoring Control and Communication (DRMCC) equipment. These signals are used by utilities and industrial customers for monitoring bushing insulation as well as monitoring for partial discharges that may be occurring in a transformer's bushings or windings.

Bushings are one of the top failure modes for power transformers where over 50% of these failures cause major fires or total transformer destruction. Use of Dynamic Ratings type BAU sensors can provide the data necessary to ensure "good" readings while providing unmatched protection.

Design Advantages

Globally, Dynamic Ratings has thousands of BAU sensors monitoring customer's transformers. To accomplish this DR offers over two dozen standard bushing sensor designs and can design and build new models within several weeks to accommodate customers demanding applications.

Features & Benefits

BAU is Industry's ONLY bushing sensor with three levels of protection including:

- Open Circuit / Voltage limiter – Dynamic Ratings unique design, features a current balancing circuit and output voltage limiter
- Surge Protection – provides surge and system transient protection
- Fail Safe Circuitry – automatically grounds the sensor at the tap

Type BAU Bushing Sensors are installed in the bushing test / capacitance tap that are found on most bushings 69kV and above. These sensors are designed with three physical sections including a main body, adapter head and contact. In all cases, the body of the sensor is same. Only the adapter head and contact will change, based on the design of the bushing tap to be monitored.

Theory of Operation

Under normal operation the bushing test/ capacitance tap is grounded. When a sensor is installed, the tap is no longer grounded at that point. The bushing will then be grounded at the monitoring equipment. If the bushing tap were left ungrounded, a voltage of several kilovolts would develop at the tap which could be a hazard to personnel, and may cause a catastrophic bushing failure.

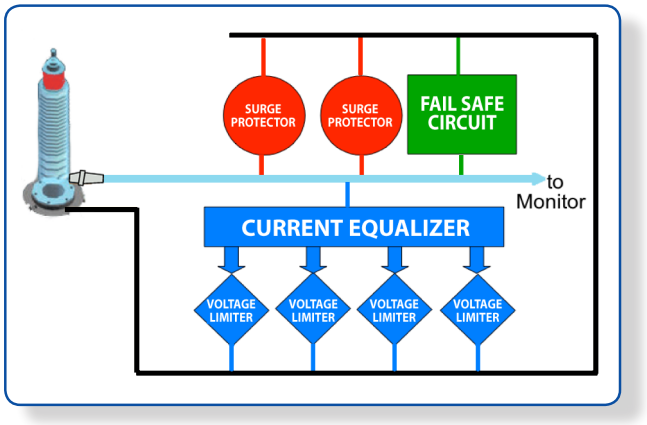
3 Levels of Built-In Protection

1. Open Circuit / Voltage Limiter – There are four voltage limiters used in the sensor. A current balance circuit is used to distribute the stress equally. This protection circuit will limit the output voltage to around 17 volts AC if the wiring or the monitoring systems loses the ground connection. The circuit has a safety factor of 2 built in for 500 kV and below.

2. Surge Protection – It is necessary to provide surge protection for switching and system transients. Two surge protection circuits exist for this purpose. The circuits have a safety factor of 2 built in for bushing rated 500 kV and below.

3. Fail Safe Circuit – A fail safe circuit is included that will automatically ground the tap inside the body of the sensor should the open circuit and/or surge protection fails.

The graphic below depicts the three levels of built-in protection of the DR BAU sensor product line.



In addition to the BAU sensor, the Type BAU-HVCT is a similar sensor but it is installed in series with the ground lead in the base of High Voltage Current Transformers (HVCT). Both types of sensors can be connected to the Dynamic Ratings Bushing Monitoring and Partial Discharge Monitoring Systems.

BAU Bushing Sensors – ORDERING INFORMATION

Please consult your Dynamic Ratings representative or contact our factory directly for assistance ordering the Type BAU and BAU-HVCT bushing sensors matched to your transformer.

BAU sensors are provided with a 1/2" seal tight fitting and (18m) / 60 ft. of RG58 cable. If additional cable length is required please specify when ordering.

DYNAMIC RATINGS

Asia / Africa / United Kingdom
+61 3 9574 7722
sales.asia@dynamicratings.com

Americas / Europe / India / Middle East
+1 262 746-1230
sales.us@dynamicratings.com

www.dynamicratings.com