ABB Inc.

Speed Probe and Overspeed Protection Bracket

Product No. W01SP7
Specifications:

**Active Probe**
- **Power Supply Voltage:** 4.5 to 24 vdc
- **Power Supply Current:** 50 mA maximum
- **Output Voltage:** 0 to 5 v
- **Manufacturer:** AI-Tek
- **Typical Gap:** .010 inch

**Passive Probe**
- **Output Voltage Range:** 1 to 100 v
- **Manufacturer:** AI-Tek
- **Typical Gap:** .030 inch

**Speed Probe and Overspeed Protection Bracket Assembly (Product No. W01SP7)**

The probes monitor a gear (speed wheel) rotating with the rotor, and provide signals to the DCS for Automatic Speed Control (3 Passive, 1 Active) and Overspeed Protection (3 Passive) of the Turbine. These probes generate a voltage spike as each tooth of the speed wheel passes across the probe face. The modules in the Turbine Control System process this information to regulate turbine speed. Probe installation and gapping (see table above) depend on the individual parameters of the specific Turbine.

The Speed Probe Bracket Assembly, W01SP7, consists of six (6) Passive Probes, one (1) Active Probe, and one (1) Mounting Bracket. The Mounting Bracket, designed to fit around the existing speed wheel, permits adjustment of the proper probe air gap for operation. Note: In certain circumstances, a new Speed Wheel may be required. The Active speed probe (external power required) is an input to the DCS for zero speed detection of the rotor.

**Periodic Maintenance**

As with all mechanical components, a minimal level of preventive maintenance is required for long-term reliability and availability. The following periodic maintenance items should be scheduled by Plant Maintenance staff.

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>INTERVAL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bracket Mounting Screws</td>
<td>Outage</td>
<td>Inspect</td>
</tr>
<tr>
<td>Probe Locknut</td>
<td>Outage</td>
<td>Inspect</td>
</tr>
<tr>
<td>Probe Operating Gap</td>
<td>Outage</td>
<td>Inspect/Adjust</td>
</tr>
</tbody>
</table>
Electrical Schematic

PASSIVE PROBE 1

PASSIVE PROBE 2

PASSIVE PROBE 3

PASSIVE PROBE 4

PASSIVE PROBE 5

PASSIVE PROBE 6

ACTIVE PROBE
A: VOLTAGE SUPPLY
B: VOLTAGE OUTPUT
C: COMMON
Installation Drawing

Passive Probe
(7)

Active Probe – Zero Speed

Dimensions of Bracket to suit Application

Existing Speed Wheel