The IntelliSAW temperature sensors are the ideal method for real-time, continuous monitoring of low and medium voltage critical asset hot-spots such as bus bars, breaker contacts, and cables. Surface acoustic wave (SAW) technology enables a 100% wireless, passive (no power required) continuous temperature monitoring sensor. The SAW sensors were specifically designed for electrical power assets with basic insulation levels (BIL) up to 185kV.
SAW SENSORS: INTEGRATED ANTENNA (IS)

The Integrated Antenna SAW Sensors are the most reliable method of thermal monitoring in a wide range of electrical power critical asset applications including switchgear, bus ties, bus ducts, transformers, and generator circuit breakers. The sensors seamlessly interface to all IntelliSAW Critical Asset Monitoring systems and provide up to twelve measurement locations per asset.

SPECIFICATIONS

TEMPERATURE MEASUREMENTS

Range: -25°C to +125°C
Resolution: ± 0.2°C
Accuracy:
- Standard Range (0 to 80°C): ± 2°C
- Full Range: ± 4°C
Number of Sensor Channels: 12 (non-overlapping channels)
Sensor Frequencies: Between 425 MHz to 442 MHz

PHYSICAL

Base Plate Material: 260 Brass, Tin Plated
Cover Material: Polycarbonate, UL94-HB
International Protection (IEC 60529): IP 30
Cover Dielectric Strength: 15 kV
Dimensions: 30.5 W x 53.5 L x 35.5 mm H

MOUNTING

Bolt (Max): 13 mm or ANSI ½ in.
Mounting Torque (Max): 102 N-m (75 lb-ft)
Use asset manufacturer’s recommended bolt torque at all times. A high strength flat washer between the nut and sensor must be used.

Alternative Solutions:
- **Cable Tie**: 5.5 W x 1.65 mm Thick (Max)
  - Non-conducting ETFE, 150°C operating temperature (McMaster-Carr 70215K93)
- **Bonding Tape**
  - 3M VHB 4646 Bonding Tape (150°C operating temperature)

TYPE TESTING

IEC 62271-100: MV Switchgear, Voltage withstand: 95 kV/1m, 185 kV pulse
IEC 62271-200: MV Switchgear, Short circuit withstand: (63 kA/3s, 171 kA peak)
SENSOR GROUPINGS

Sensors are grouped with unique color codes to support easy installation and visualization in electrical power assets.

When commissioning a system, care must be taken not to duplicate same sensor frequency bands within a given asset. IntelliSAW recommends selecting sensors based on their groupings for optimal performance. Please contact sales for more details.

<table>
<thead>
<tr>
<th>COLOR</th>
<th>SENSOR BANDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orange</td>
<td>01, 03, 05</td>
</tr>
<tr>
<td>White</td>
<td>02, 04, 06</td>
</tr>
<tr>
<td>Gray</td>
<td>07, 09, 11</td>
</tr>
<tr>
<td>Tan</td>
<td>08, 10, 12</td>
</tr>
</tbody>
</table>
The IntelliSAW capacitive coupled sensors offer innovative advancements in continuous temperature monitoring of compact switchboards while simplifying EMC considerations. Designed for installation in Low Voltage (LV) systems such as motor control center (MCC), LV distribution boards (LVDB), and other related applications, the sensors are easily mounted and measured through capacitive isolation over an IEC standard air gap.

## SPECIFICATIONS

### TEMPERATURE MEASUREMENTS

<table>
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<tr>
<th>Parameter</th>
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</thead>
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<td></td>
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<tr>
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</tr>
<tr>
<td>Number of Sensor Channels</td>
<td>12 (non-overlapping channels)</td>
</tr>
<tr>
<td>Sensor Frequencies</td>
<td>Between 425 MHz to 442 MHz</td>
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</tbody>
</table>

### PHYSICAL

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Plate Material</td>
<td>260 Brass, Nickel Plated</td>
</tr>
<tr>
<td>Cover Material</td>
<td>UL94V0 FR4 printed circuit board</td>
</tr>
<tr>
<td>Cover Dielectric Strength</td>
<td>N/A, conductive to base</td>
</tr>
<tr>
<td>Dimensions</td>
<td>19 W × 30 L × 5.5 mm H</td>
</tr>
</tbody>
</table>

### MOUNTING

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clip or Tie Wraps</td>
<td>1 × 2 mm cross section</td>
</tr>
<tr>
<td>Shrink wrap</td>
<td>Non-conductive polymer</td>
</tr>
</tbody>
</table>

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FCC  
Canada Industrie  
Canada Industrie  
CE
MECHANICAL

MOUNTING
Custom mounting clips or tie wraps can be used to mount the CC sensors. Please request more information on how to design mounting clips.

SAFETY
IntelliSAW systems are installed in close proximity to medium and high voltage electric power equipment. Qualified personnel need to observe industry standard safety practices that will protect the systems and operators from harm due to induced voltages. Proper antenna installation and system safety grounding is crucial to operator safety and system reliability.

HOMOLOGATION
System integrators and installers are responsible for adhering to all regional regulations concerning the import, installation and operation of IntelliSAW Critical Asset Monitoring systems.
MODELS NUMBERS
Not all model combinations are stocked, please contact sales before ordering.

SENSOR FAMILY (SF)
- IS: Integrated Antenna SAW Sensor
- CC: Capacitive Coupled SAW Sensor

FREQUENCY BAND (F)
- 01: Band 01
- 02: Band 02
- 03: Band 03
- 04: Band 04
- 05: Band 05
- 06: Band 06
- 07: Band 07
- 08: Band 08
- 09: Band 09
- 10: Band 10
- 11: Band 11
- 12: Band 12

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