**Inspection of Concrete Structure**

**Issue**
Delamination of concrete structure needs to be found without use of work platform or scaffold.

**Avio Solution**
Avio IR Thermography allows you to diagnosis delamination of concrete structure from distance, without work platform or scaffold, which contribute to improve work efficiency.

- With super resolution, max. 1280×960 pixel image is acquired.
- Wide field of view is available by wide angle lens (max. 93°).

![Image of concrete structure with delamination highlighted]
# Suitable model for diagnosis of concrete structure

<table>
<thead>
<tr>
<th>Model</th>
<th>R550S</th>
<th>R450S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detector</td>
<td>2-dimensional uncooled microbolometer</td>
<td></td>
</tr>
<tr>
<td>Display Pixels (Super Resolution)</td>
<td>307,200 pixels : 640×480 (1.2M Pixels : 1,280×960)</td>
<td>172,800 pixels : 480×360 (0.7M Pixels : 960×720)</td>
</tr>
<tr>
<td>FOV</td>
<td>32°(H)×24°(V)</td>
<td>24°(H)×18°(V)</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>0.025℃ (S/N improvement)</td>
<td>0.025℃ (S/N improvement)</td>
</tr>
<tr>
<td>Measurement Range</td>
<td>-40～650℃</td>
<td>-40～120℃</td>
</tr>
<tr>
<td>Frame Time</td>
<td>30Hz</td>
<td>40Hz</td>
</tr>
<tr>
<td>Spatial Resolution (Super Resolution)</td>
<td>0.87mrad (0.58mrad equiv.)</td>
<td>0.87mrad (0.58mrad equiv.)</td>
</tr>
<tr>
<td>Option Lens</td>
<td>X2 Tele, X2 Wide, X3 Wide</td>
<td>X2 Tele, X2 Wide</td>
</tr>
</tbody>
</table>

## Theory of concrete structure delamination detection

1. **During day time**, when external thermal stress is applied to concrete structure, delaminated area are heated faster than normal area, because of smaller thermal capacity.  
   - *Example of thermal stress*: Sun light, temperature gap between day time and night time.
2. **When external thermal stress is gone**, heat accumulated inside of the concrete, will be radiated. Therefore, delaminated area with smaller thermal capacity becomes colder than normal area with larger thermal capacity. (Reversed phenomenon)

Avio offers most suitable model for all of your measurement needs.

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**WARNINGS & CAUTIONS**

- Before using this product, please carefully read the provided Operation Manual *WARNINGS* & *CAUTIONS* section to ensure proper operation.
- Please do not place the product in high temperature, high humidity or high inert gas environments.

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