

to accurately identify optimal inspection timeframes

J-SYSTEM Specimen

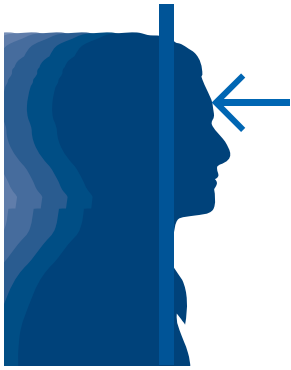
attachable thermal environment measuring system

Patent Applied For



understand basal temperature before inspection

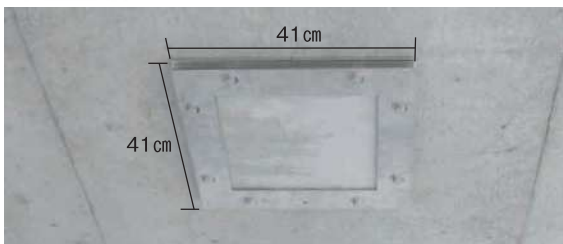
- 1 Becomes thermally uniform with the structure to capture the inspection environment accurately
- 2 Accurately captures the complex thermal environment (temperature variations, wind, solar radiation)
- 3 Attaches without anchorage (leaving no damage on the structure)



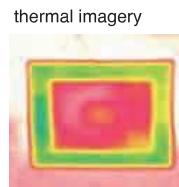
It is important to understand the optimal time period for accurate infrared inspection.

Our J-SYSTEM Specimen is an instrument to determine the optimal time period for infrared inspection. Attach J-SYSTEM Specimen on a concrete surface and the system exchanges heat with the surface to become thermally uniform. Our J-SYSTEM Specimen enables on-site bridge inspectors to understand the optimal time period to perform infrared inspection based on thermal variations from solar radiation, even on a steel bridge with a thin concrete deck and box girders. The conventional self-standing equipment captures limited thermal information while our J-SYSTEM Specimen smoothly attaches to concrete surfaces to become integral with the structure. Our J-SYSTEM Specimen does not require anchorage for installation, thus avoiding damage to the structure.

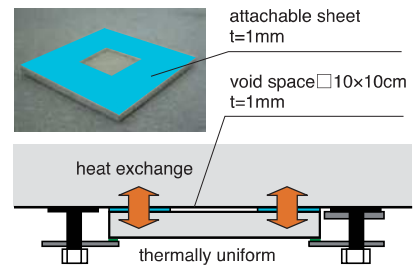
Point Integral heat exchange enables replicating pseudo-damage.



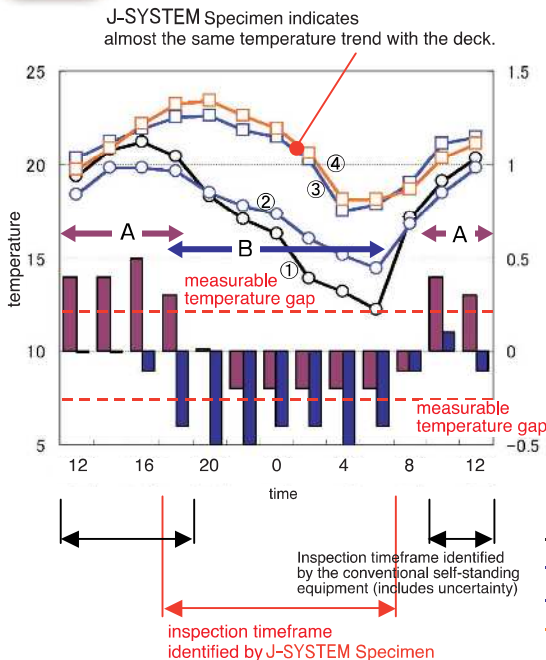
installation example



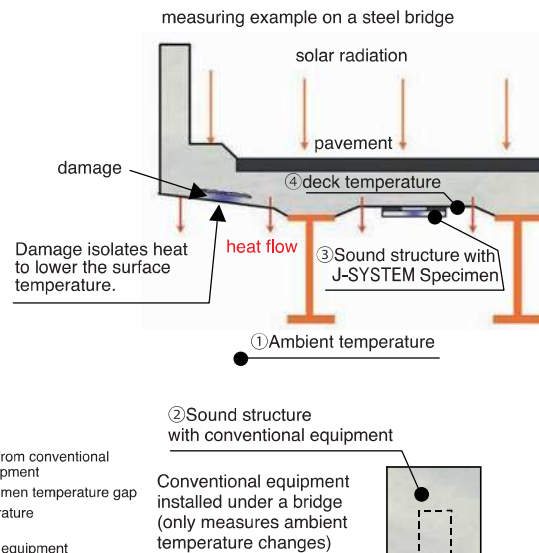
thermal imagery



Point J-SYSTEM Specimen identifies the optimal timeframe for infrared inspection, even for concrete deck



A indicates the time unsuitable for inspection (unable to be determined by the conventional equipment)
 B indicates appropriate time for inspection



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to evaluate potential damage of structure

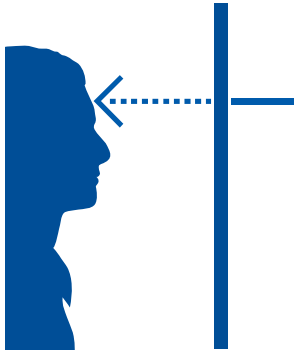
J-SYSTEM Monitor

Inspection assistance monitor

Patent Applied For



- 1 Visually displays damage ratings on site
- 2 Minimize variations and oversights from inspector's subjective judgment
- 3 Ensures higher reliability for infrared inspection with easier damage detection



Attach J-SYSTEM Monitor to an infrared camera to see damage on site in real time.

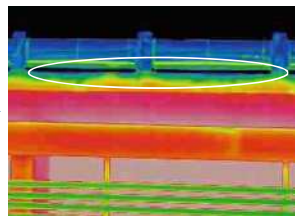
Infrared inspection dramatically changes inspection for concrete structures. Our J-SYSTEM Monitor strongly supports more efficient on-site bridge inspection. The J-SYSTEM Monitor can be installed on a compatible infrared camera to show real-time inspection results. Thermal imagery shows thermal variations that visually indicate damage and the search mode emphasizes thermal variations. The evaluation mode categorizes damage into three levels in order to locate areas with delaminated concrete.

Point

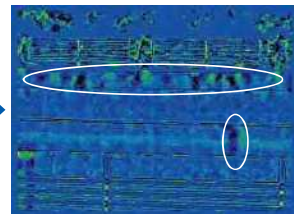
The J-SYSTEM Monitor employs three analysis methods to inspect damage in detail.



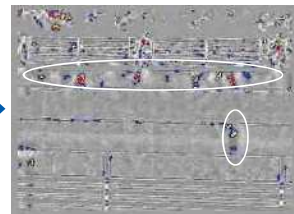
visible imagery
*Overhang part of a concrete bridge with multiple main girders



① Conventional thermal imagery detects damage by temperature variations, but not all damage is clearly visible in thermal imagery. Damage severity cannot be estimated.

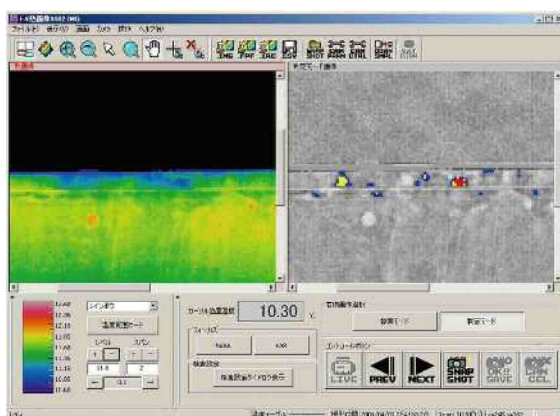


② Search mode: emphasizes temperature variations of damage



③ Evaluation mode: displays severity of delamination in real time, in three categories

- observation
- caution
- critical



operating environment

- OS: Windows XP
- hardware: Intel Core2 Duo CPU U9300@1.20GHz
- memory: 2GB

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to automatically detect delamination from infrared imagery

J-SYSTEM Software

Damage evaluation assistance software

Patent number: 4526570



Significant time and cost reduction
to inspect structure's internal health

- 1 Automatically detects delaminated concrete from thermal imagery
- 2 Automatically categorizes damage severity in three levels
- 3 Eliminates subjective variations and oversight in damage evaluation
- 4 Supports production of inspection reports with easily transferable imagery to common spreadsheet and word processor software



Automatically detects delamination from infrared imagery. J-SYSTEM Software displays detailed damage in three levels of severity.

J-SYSTEM Software identifies critical delamination that cannot be differentiated in the conventional infrared inspection. This software uses accumulated inspection data to analyze damage to indicate three levels of severity. It eliminates subjective variations and oversight with objective analysis. Additionally, thermal and analysis imagery can be easily cut and pasted to common spreadsheet and word processor software to help produce reports and other documents.

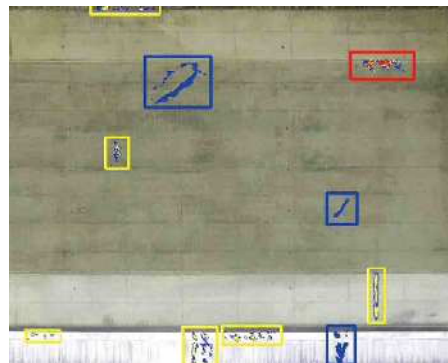
Point

**J-SYSTEM Software can analyze a large amount of data.
Objective analysis with J-SYSTEM Software eliminates subjective
variations and oversight in damage evaluation.**

damage evaluation with J-SYSTEM Software



damage severity
categorized
in three levels

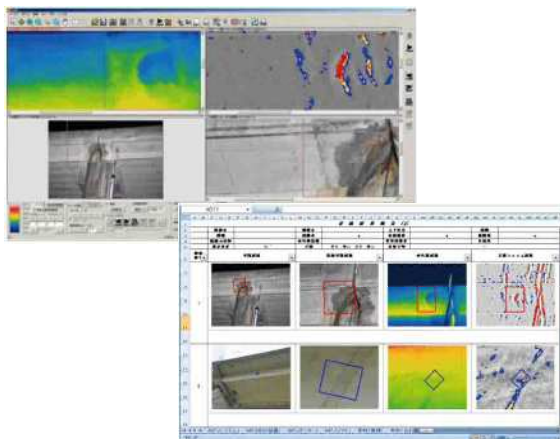


Sounding test is applied **only**
to areas identified as "Critical."
(More efficient).

critical
caution
observation

Point

**Thermal and analysis imagery can be easily cut and pasted
to common spreadsheet and word processor software
to help produce reports and other documents.**



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