Regular inspection is important for detecting abnormalities early and taking prompt response.
Regular maintenance prevents you from losing an opportunity to sell electricity.

For more information and quotes contact us.

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O & M Solution for Photovoltaic Power Generation
Drone Inspection for PV Module

PV Clinic

"Health check" is indispensable for solar power plants too!

Detect abnormalities as early as possible and take necessary measures to maintain an optimum power generation!

Make hidden abnormalities visible!

A drone equipped with an infrared camera shoots and inspects PV modules

Features of PV Clinic

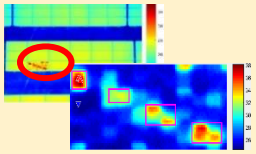
- ✓ **No power generation interruptions during inspection**
  It is possible to make the inspection easily during daytime without stopping power generation.
- ✓ **High quality images shot in line with IEC standards allow precise diagnosis**
  Requirements for infrared camera, shooting environment, and shooting conditions conform to IEC standards.
- ✓ **Reduced inspection time and cost**
  Realizes improved work efficiency and low cost by utilizing drone and automated image analysis.
- ✓ **Improved safety**
  Modules installed on slopes or at high places as well as floating solar can be inspected safely and quickly.
- ✓ **High maintenance quality**
  Thanks to simultaneous capture of infrared and visible light images as well as automated analysis, objective and consistent diagnosis is possible, which in turn ensures high quality maintenance.
- ✓ **Automatic creation of inspection report**
  Automatically creates a report that includes the position of defective module and analysis results.

Service overview of PV Clinic

Shooting by drone

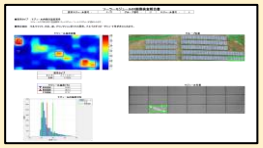
- ✓ Drone flight route setting
- ✓ Setting of shooting environment
- ✓ Confirmation of climate conditions
- ✓ Shooting

Automatic recognition of images & analysis of abnormalities



- ✓ Recognition of modules (location)
- ✓ Analysis of defective modules
- ✓ Data analysis by AI

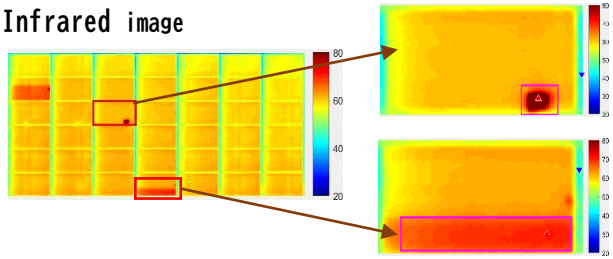
Report creation



Creation of report which includes the location of defective modules and images of analysis results

Example of detected abnormalities

Infrared image



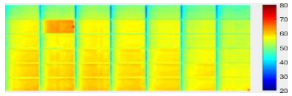
Hot spot

- Cell cracks
- Trees, weeds, and shadows
- Dirt and dust

Cluster failure

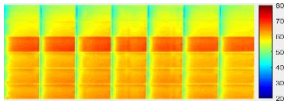
- Internal wire breaking
- Bypass diode

Module temperature abnormalities



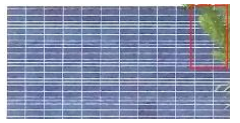
- Cracks in the entire module

String temperature abnormalities



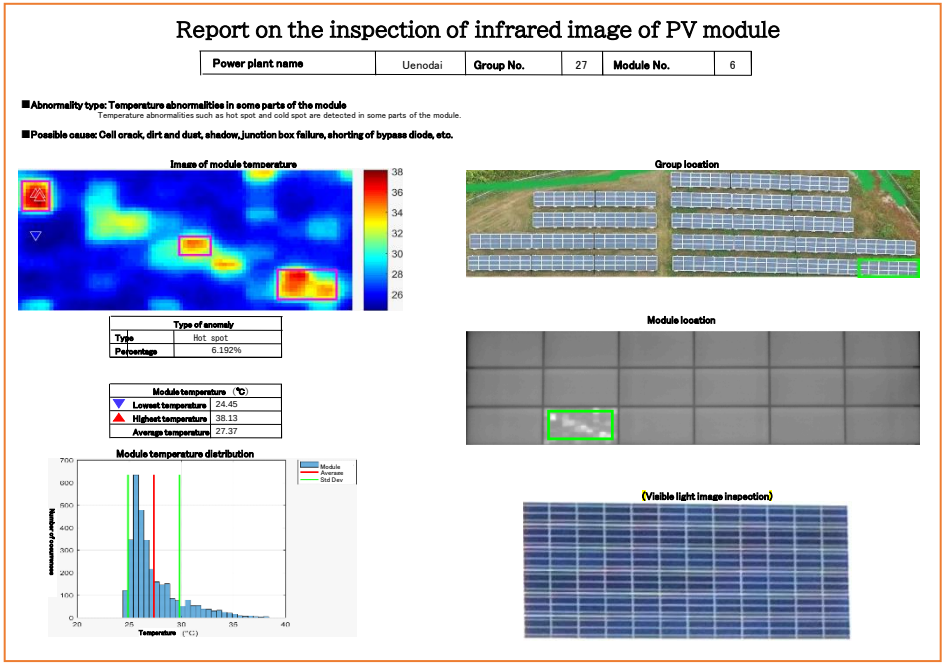
- Connection box failure
- Faulty connection connector/cable

Visible light image



Trees and shadow of weeding, dirt and dust

Inspection report



Report on the inspection of infrared image of PV module

Power plant name	Uenodai	Group No.	27	Module No.	6

■Abnormality type: Temperature abnormalities in some parts of the module
Temperature abnormalities such as hot spot and cold spot are detected in some parts of the module.

■Possible cause: Cell crack, dirt and dust, shadow, junction box failure, shorting of bypass diode, etc.

Image of module temperature

Group location

Type of anomaly	
Type	Hot spot
Percentage	6.192%

Module location

Module temperature (℃)	
Lowest temperature	24.45
Highest temperature	38.13
Average temperature	27.37

Module temperature distribution

(Visible light image inspection)