

Dedicated to Live Nuclear Core Inspection

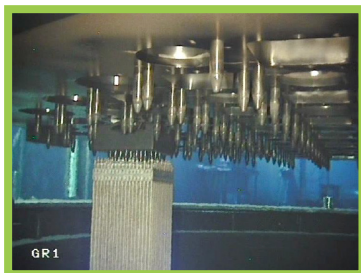
APPLICATIONS

- Live core inspection
- Fuel assemblies identification
- Fuel assemblies gap measurement
- S-Hole verification
- FME activity

BENEFITS

- Increased assembly inspection quality
- Reduced risk of stuck assemblies
- Reduced maintenance duration

Software by  EDF



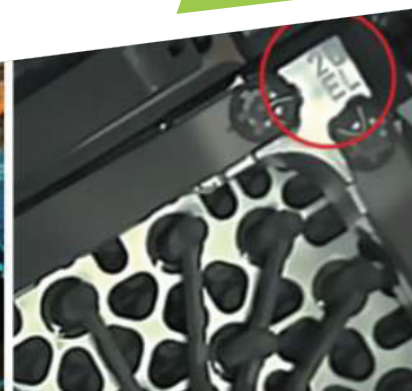
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NOTURB® reduces the risks of stuck assemblies



NUCLEAR

Assemblies identification



NEW

New version available : **NOTURB-100 software**
Use NOTURB® on your computer.

NOTURB® is a real-time video deblurring and processing system for live nuclear core inspections. By increasing the quality of the core assembly video, NOTURB® reduces the inspection time required for outages and increases operator confidence in the accuracy of the inspection process.

TECHWAY offers operators real-time video processing capabilities and a fully-integrated tool, with a user-friendly interface. All the functionalities are developed to facilitate the maintenance operations.

- Deblurring tool
- Measurement tool
 - Calibration, Standard pattern
- Contrast enhancement
 - New / Old Assemblies
- Removal of radiation-induced video noise
 - Video noise = White pixel
- Recording of raw or processed videos
- Full screen or Zoom
- Text & Graphic overlay

NOTURB® system was developed following many years of close collaboration with EDF and is deployed extensively across the 19 EDF operated PWR fleets in France, where it has been proven to reduce the time taken for outage inspection operations.

The tool is based on a very sophisticated patented algorithm.



KEY FEATURES

- Patented algorithm to restore blurred videos
- Real-time video processing capabilities from files or cameras
 - Supports .AVI, .MPEG, .MP4, .TS, .VOB files
 - Supports PAL/NTSC camera inputs
- Raw and processed video recording
- Text and graphic overlay
- Noise removal
- Measurement tool
- User-friendly interface
- Rugged system to meet the environmental requirements of nuclear reactors

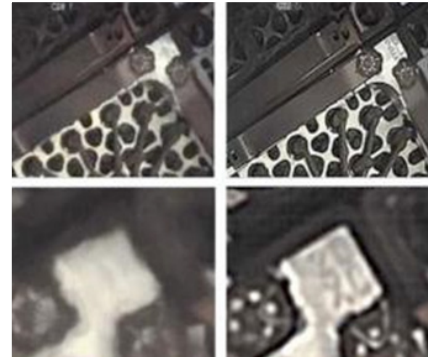
TECHNICAL DATA

- Dimensions / Weight :
 - NOTURB-1000**
314x416x100mm / 8kg
 - NOTURB-1300**
540x250x425mm / 6kg
 - NOTURB-2000**
4U 19" rack, depth 451mm / ~18kg
 - NOTURB-3000**
215x272x114mm / ~6kg
- Operating temperature :
 - NOTURB-1000/2000** : 0°C to 50°C
 - NOTURB-3000** : -5°C to 55°C
- Storage temperature :
 - NOTURB-1000/2000** : -20°C to 70°C
 - NOTURB-3000** : -20°C to 85°C

ORDERING INFORMATION

- | | |
|--------------------|-----------------------|
| NOTURB-100 | Software version |
| NOTURB-1000 | Transportable station |
| NOTURB-1300 | Case for NOTURB-1000 |
| NOTURB-2000 | Rackmount station |
| NOTURB-3000 | Fan less rackmount |

Left images :
raw video



Right images :
processed video

PRODUCT DESCRIPTION

NOTURB® filters sub-aquatic videos of the assemblies by digital processing. It eliminates turbulence caused by the fuel assemblies. NOTURB® also serves a valuable purpose for the operators in assembly identification, and enables them to make accurate gap measurements.

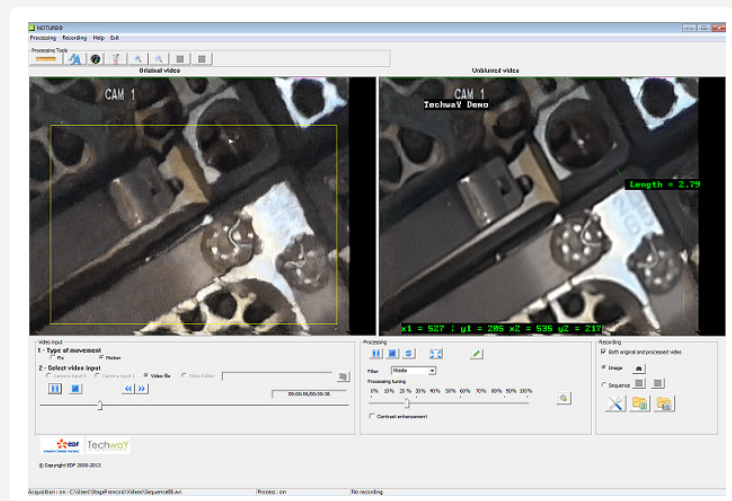
TECHWAY's video-deblurring tool can be connected to inspection cameras, the system is compatible with all camera manufacturers.

NOTURB® captures and processes videos in real time. Both raw and processed videos are displayed on the same screen.

NOTURB's user-friendly interface allows to quickly pick up all the functionalities.

NOTURB's video-restoration algorithm is patented by EDF.

INTUITIVE INTERFACE (EXAMPLE OF GAP MEASUREMENT)



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