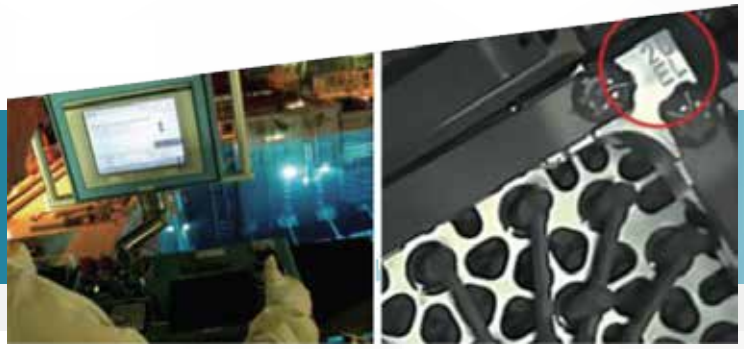
MIRION TECHNOLOGIES

Radiation. **Safety.**

NOTURB-1000, NOTURB-2000, NOTURB-3000

Real-Time Video Deblurring and Processing System for Live Nuclear Core Inspection



Assemblies identification

Nuclear Power | Homeland Security & Defense | Industrial and Manufacturing | Healthcare | Labs and Education

OVERVIEW

The Techway NOTURB® video processing system assists operators during outage inspection by removing the effects of underwater thermals when viewing hot fuel assemblies. This can reduce the inspection time required for outages and increase operator confidence in the accuracy of the inspection process.

Additional standard features include fuel gap measurement to assist operators in fuel handling operations and a filter to remove radiation induced video noise from CCD or CMOS based camera systems.

The NOTURB® system was developed following many years close callaboration between Techway and EDF and is deployed extensively across the EDF operated PWR fleet in France, where it has been proven to reduce the time taken for outage inspection operations.

The Mirion and Techway partnership combines unparalleled industry and application knowledge with the latest innovation in real-time video processing technology.

Software by EDF

NOTURB® is a registered trademark of EDF.

KEY FEATURES

- Real-time video processing of live video, recorded images or stored video files
- Gap measurement
- Radiation induced video noise removal
- Supports .AVI, .MPEG, .MP4, .TS, .VOB files
- Supports various camera inputs
- Recording of raw or processed video
- Easy connection into existing video systems/ infrastructure
- User-friendly interface
- Ruggedized package compliant with a Reactor environment

BENEFITS

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

APPLICATION

- Live core inspection
- Assemblies identification
- Assemblies gap measurement

Imaging Systems

SPECIFICATIONS AND PERFORMANCE

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

Product Description

Mirion's video-deblurring tool can be connected to inspection cameras. NOTURB® captures and processes videos in real time. Both raw and processed videos are displayed on the same screen.

NOTURB®'s user-friendly interface enables you to record video sequences and to replay them for post-mission analysis.

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

Mirion's NOTURB® station comes in 3 versions: Transportable, Rackmount and Office.

NOTURB-1000 – the transportable version – is a rugged, light-weight computer including an LCD monitor, a keyboard and a touchpad. Thanks to its compactness, NOTURB-1000 can be easily used in small spaces. Moreover, its transport handle makes it easy to move. NOTURB-1000 comes with an optional rugged case which enables easy and safe transportation.

NOTURB-2000 – the rackmount version – is an industrial 4U computer. NOTURB-2000 is perfect for customers who want to integrate the station into their own video-inspection system.

NOTURB-3000 – the office version – is designed for office or lab use. NOTURB-3000 is made of a «shoebox» computer, an LCD monitor, a keyboard and a mouse.

NOTURB 1000	
Dimensions	314 x 416 x 100 mm
Weight	8 kg

NOTURB 1300	
Dimensions	540 x 250 x 425 mm
Weight	6 kg

NOTURB 2000	
Dimensions	451 mm
Weight	≈18 kg

NOTURB 3000	
Power Supply	220/110 V
Operating Temperature	0 +50 °C
Storage Temperature	-20 +70 °C

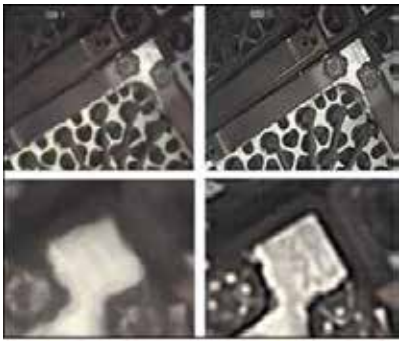
NOTURB-1000

NOTURB-1300

NOTURB-3000

NOTURB-2000

Left images: raw video



Right images: processed video

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Specifications may vary according to system configuration. We reserve the right to modify or amend the information herein without prior warning. Please contact your Mirion representative for further information.

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