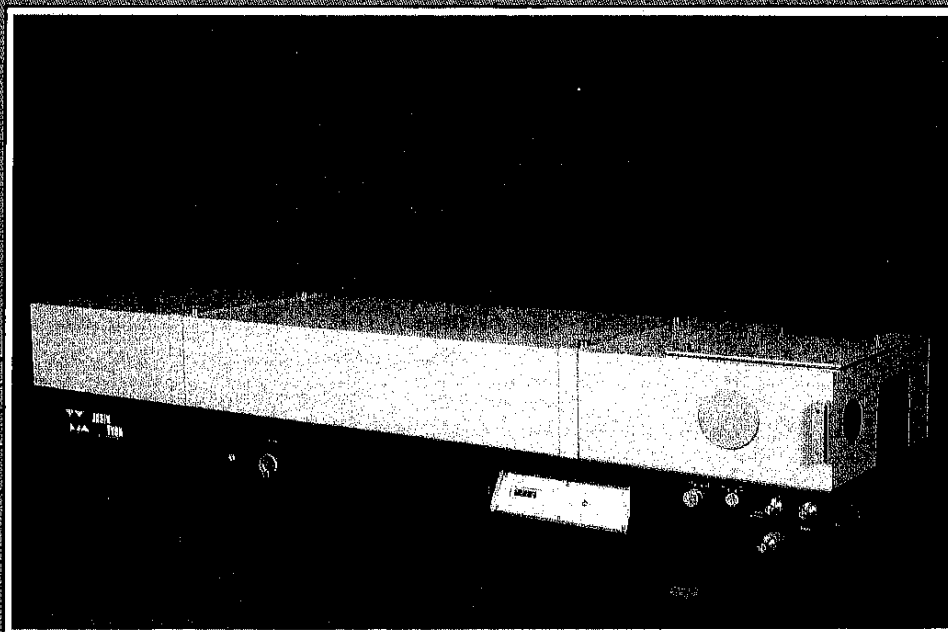


THR Monochromator

CZERNY TURNER type, 1500 mm focal length
very high resolution (300 000),
interchangeable gratings



The first monochromator combining :

- ease of use
- high resolution (300 000 in double pass)
- high luminosity resulting from single pass configuration

The single/double pass switching is done with a simple control, without adaptation.

Excellent wavefront quality (better than $\lambda/8$).

The grating can be changed immediatly, giving the user a wide range of available wavelengths (from 170 nm to 50 μ , according to the grating).

High resolution : 0.015 \AA at 5 000 \AA with a 2400 grooves / mm grating.

High spectral purity, which can be optimized still further in certain wavelength ranges by using blazed holographic gratings with high yield and low stray light level.

The configuration is adaptable to user needs : delivered with axial slits, the THR 1500 can be optionally equipped with lateral slits and commutable mirrors. All configurations can thus be used.

Photographic plate holder in lateral exit.

Curved slits with independent adjustments. Width and height can both be set.

Ease of use : its simple and robust construction result in high stability. Combined with flexibility of use and ease of adjustment, the THR 1500 is a high performing and easily used monochromator.

Electronic control center : The THR 1500 must be drive by SPECTRALINK who allow to control many fonctions as : Motor drive board, Acquisition, HV, Computer interface, etc.

Very wide range of accessories. The THR 1500 can accept a variety of light sources, detectors, peripherals (slits, recorders, benches, etc.), thus extending its possibilities of use.

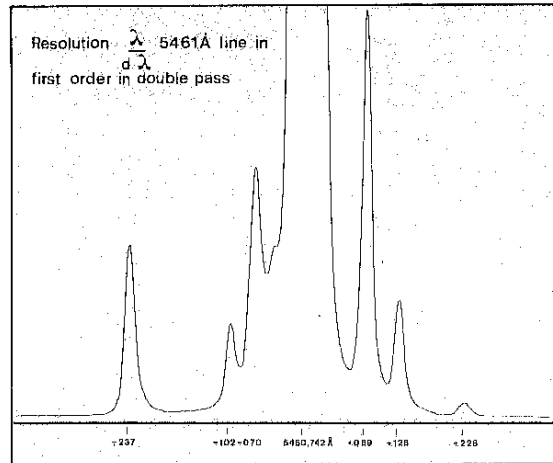
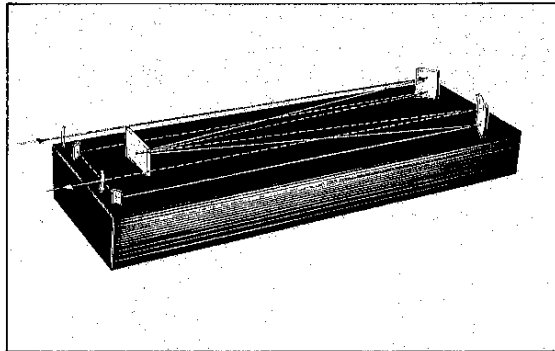
Principal applications :

Among many, we may cite :

- the determination of the fine structure of a line,
- measurement of spectral line broadening (Stark effect, Zeeman effect),
- measurement of spectral line shifts (Doppler effect),
- study of low luminescence,
- study of dynamic phenomena with a Vidicon, Reticon or multichannel detector (diode array).

OPTICAL SCHEME

Optical scheme of the THR 1500 used in double pass.



SPECIFICATIONS :

Optical configuration : Czerny-Turner, utilizable in single or double pass.

Focal length : 1 500 mm (3 000 mm in double pass)

Spectral range : from 180 nm to 50 μ , according to grating.

Resolving power : 150 000 in single pass
300 000 in double pass
(Or 0.015 \AA at 5,000 \AA).

Dispersion : Single pass : 2.6 $\text{\AA}/\text{mm}^*$
Double pass : 1.3 $\text{\AA}/\text{mm}^*$

Gratings : ruled or holographic
Standard size = 80 \times 110 mm

Aperture : f/ 14

Stray light level : 0.5.10⁻⁴ in single pass at $\lambda = 2100 \text{\AA}$ (1.10⁻⁵ in double pass)*

Slits : Curved Fastie very high precision slits. Width adjustable from 0 to 2 mm, with readout in microns.

Height adjustable from 0.5 to 30 mm in single pass and from 0 to 12 mm in double pass.

Geometric limit : 10⁻³ steradian / \AA for maximum slit height.

Display : wavelengths in \AA digitally displayed.

Nitrogen flush : standard.

Size : 1650 x 360 x 332 mm

Weight : 100 kg

Standard equipment : Stepping motor. Possibilities with electronic control center SPECTRALINK.

Scanning : 0.05 to 50 $\text{\AA}/\text{min}^*$

Reproducibility : 0.02 \AA^*

Rapid return : 3200 $\text{\AA}/\text{min}^*$

Coupling to computer.

* Value for a 2400 grooves/mm grating.

ACCESSORIES :

The THR 1500 can be equipped with a large number of accessories, leading to very flexible utilization.

- **Gratings :** ruled or holographic. Immediately interchangeable. Large choice of spectral ranges.

- **Light sources :** xenon, deuterium, tungsten ribbon, spectral lamps, globar, etc.

- **Filters :** order separators.

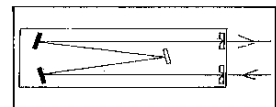
- **Detectors :** photomultipliers covering a wide range of wavelengths, PbS and IsSb cells, thermocouple, Vidicon or Reticon type camera, multichannel detectors.

- **Peripherals :** optional lateral slits, control console, visualizer, photographic accessory, recorder...

Detailed documentation on the top of the line monochromators is available upon simple request.

Version proposed : • Basic version

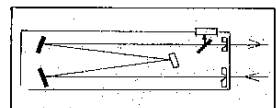
- axial entrance slit
- axial exit slit



Optional possibility of additional lateral entrance or exit slits, separately or simultaneously.

THR P

- axial entrance slit
- axial exit slit
- 9 \times 12 cm photo lateral output.



Option : additional lateral entrance slit.

Total field with 2400 grooves / mm holographic grating :
80 \AA in single pass, 50 \AA in double pass

Full light field with 2400 grooves / mm holographic grating : 50 \AA in single pass, 30 \AA in double pass.

THR V

Designed for work under vacuum.

Equipped with a 3000 grooves / mm holographic grating.

Spectral range : 1200 - 3500 \AA .



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J-Y Optical Systems
Instruments SA, Inc.

February 5

THR 1500 MONOCHROMATOR/SPECTROGRAPH SYSTEM

<u>CATALOG #</u>	<u>DESCRIPTION</u>	<u>PI</u>
110.70.049	Model THR 1500 Monochromator 1.5 meter focal length; in double pass effective focal length is 3 meters. Includes: Variable axial entrance slit, variable axial exit slit, manual scan, stepping motor scan drive. Maximum scan speed: 200 Ang./min. Fast slewing motor, maximum slew speed: 3000 Ang./min. Requires: Spectra Link controller with fast slew module and diffraction grating (see below).	\$!
SPECIAL	Model THR 1500V for operation under vacuum	Pr Req.

The following diffraction gratings are selected, kinematically mounted and aligned for the THR 1500. All are 80 x 110 mm.

SPECIAL	Selected ⁴⁹⁶⁰ 4690 g/mm master grating for UV and special high quality optics to get full benefit of high groove density. Requires: Factory installation	Price on Request
	Selected 3600 g/mm grating	
	Selected 2400 g/mm grating	
	Selected 1800 g/mm grating	
	Selected 1200 g/mm grating	
	Selected 600 g/mm or lower grating	

THR 1500 MONOCHROMATOR/SPECTROGRAPH SYSTEM - Page

<u>CATALOG #</u>	<u>DESCRIPTION</u>
11.075.039	Curved variable lateral entrance slit
11.075.199	Curved variable lateral exit slit
11.075.344	Lateral photographic exit port
47.912.013	Photo plate carrier
16.075.201	Polaroid film carrier
11.075.324	OMA camera support
11.075.312	Optomechanical interface between 11.075.324 and THR without objective
11.075.255	Optomechanical interface between 11.075.324 and THR with 10X objective
	Optomechanical interface for end window PMT housing to THR 1500
F.303.25.502	Cooled end window PMT housing for 2-inch diameter PMT
	Fast slew kit for Spectra Link and THR 1500
	Includes: Slew module, rear panel connector assembly, cable, and transformer.

Prices are FOB, Edison, New Jersey, subject to change without notice. Applicable taxes are not included.