

## **LEOK-42** Fourier Optics Experiment Kit



- Including He-Ne laser & white light source
- Flexible configuration
- Detailed instruction manual

This Fourier Optics Experiment Kit includes experiments of Fourier optics principle and its applications. Experimental topics cover 4f optical system, Abbe imaging principle, Fourier optical filtering in frequency domain, theta modulation and pseudo-color encoding, and Fourier phase shift theorem. Optical image addition/subtraction and optical image differentiation are implemented by using an 1-D sinusoidal grating and a composite grating, respectively. They are comprehensive experiments in the field of optical information processing.

#### **Experimental Contents**

- 1. Structure and principle of an optical 4f system
- 2. Abbe's imaging theory and optical spatial filtering
- 3. Theta modulation and pseudo-color encoding
- 4. Optical image addition and subtraction using a diffraction grating
- 5. Optical image differentiation operation

# **A lambda**

## **Specifications and Part List**

Items	Specs	Qty
Optical rail	Aluminum, 1 m	1
General carrier		5
X-translation carrier		3
He-Ne laser w/power supply	2.0 mW@632.8 nm	1 set
Laser tube holder		1
White light source	30 W	1
Expander lens	f = 6.2 mm	1
Collimation lens	f = 225 mm	1
Fourier lens	f = 150 mm	2
Lens holder		4
Adjustable slit		1
Paper clamp		1
Character with 2-D grid		1
Theta modulation plate		1
1-D grating	100 lines/mm	1
Composite grating	100 and 102 lines/mm	1
Object plate	+ - and T	2
Kinematic mount		1
White screen		1
Plate holder		2
Instruction manual		1











## Experiment result of 1-D image differentiation

Input Image

Spectrum

### Experiment result of theta modulation



Experiment results of addition and subtraction operations

## Note: above product information is subject to change without notice.

Lambda Scientific Systems, Inc. 16300 SW 137th Ave, Unit 132 Miami, FL 33177, USA Phone: 305.252.3838 Fax: 305.517.3739 E-mail: sales@lambdasys.com Web: www.lambdasys.com