

# User's Manual



## Model 401025 Digital Light Meter



### ***INTRODUCTION***

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Congratulations on your purchase of Extech's Digital Light Meter. This professional meter, with proper care, will provide years of safe reliable service.

# Specifications

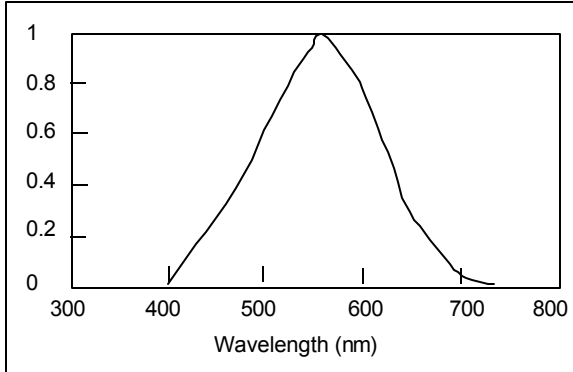
## General Specifications

Display	13 mm (0.5") LCD (Liquid Crystal Display).
Measurement	Lux, Ft-candle (Fc).
Ranges	Lux: 0 to 50,000 Lux, 3 ranges. Foot-candle: 0-5,000 Fc, 3 ranges.
Sensor	Exclusive photo diode & color correction filter, spectrum designed to meet C. I. E.
Zero Adj.	Automatic adjustment.
Sampling Time	Approx. 0.4 sec.
Response Time	Fast & Slow selector.
Over input indication	Indication of "1 "
Analog Output	0.1 mV/1 digit, max. output :200mV.
Operating Temperature	0°C to 50°C (32°F to 122°F).
Operating Humidity	Less than 80% RH.
Power Supply	006P DC 9V battery
Power Current	Approx. 2 mA DC
Weight	220 g / 0.52 LB
Dimension	Main instrument: 163x70x30 mm (6.4x2.8x1.2 inch). Sensor Probe: 85x55x12 mm (3.2x2.2x0.5 inch).
Optional Accessories	Vinyl pouch carrying case, 409996

## Range Specifications

Lux			
Range	In-range Display	Resolution	Accuracy
2,000 Lux	0-1,999 Lux	1 Lux	+/- (5% + 2digits)
20,000 Lux	2,000-19,990 Lux	10 Lux	+/- (5% + 2digits)
50,000 Lux	20,000-50,000 Lux	100 Lux	+/- (5% + 2digits)
Foot-candle (Fc)			
Range	In-range Display	Resolution	Accuracy
200 Fc	0-199.9 Fc	0.1 Fc	+/- (5% + 2digits)
2,000 Fc	200-1,999 Fc	1 Fc	+/- (5% + 2digits)
5,000 Fc	2,000-5,000 Fc	10 Fc	+/- (5% + 2digits)

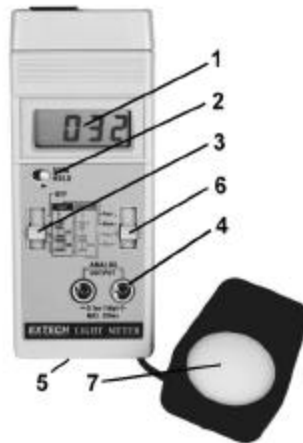
## Frequency Spectrum



## Meter Description

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1. LCD Display
2. Data Hold Switch
3. Power Off/Range Switch
4. Analog Output Terminal
5. Battery Compartment (rear)
6. LUX/Fc Switch & Response Switch
7. Light Sensor



## Operation

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1. Select Units (Lux or Ft-candle) and Response Time (Fast or Slow) on the slide switch. Typical selection is Slow and Fc using the gray lettering.
2. Select the maximum range on the "Range Switch"
3. Hold the "Light Sensor" so that the sensor faces the light source to be measured. The Display will indicate light values directly.
4. To "hold" a measurement, slide the "Data Hold Switch" to the "hold" position. The reading will "freeze" in the display until the "Data Hold Switch" is released.

Note 1: An Over Range indication is a display of "1". If this occurs, switch to a higher range.

Note 2: For measurements made on the Fc 5000 range, the displayed reading must be multiplied by 10.

Note 3: For measurements made on the Lux 20000 or 50000 range, the displayed reading must be multiplied by 10 and 100 respectively.

## Lighting Type Correction Factors

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The 401025 light meter is calibrated under a precise "Standard tungsten light source of 2856°K". If the meter is to be used under a different type of light the correction factor of from the table below should be applied to the readings obtained.

Mercury Lamp	x1.14
Fluorescent Lamp	X0.92 to 1.12
Daylight	x1.00
Sodium	x1.22
Metal Halide	x1.00

## Selecting a Measurement Range

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The meter has three measurement ranges (0-200, 0-2000, and 0-5000 Fc) and (0-2000, 0-20000, and 0-50000) Lux). The proper range selection will produce the most accurate reading. Always select the range that produces the maximum number of digits without exceeding the maximum count for that particular range. For example, a reading of 1456 Fc should be read on the 0 - 2000 range, not the 0-5000 range.

## Replacing the Battery

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When the left corner of the LCD display shows "LO BAT", it indicates the battery output is below the design limit and the battery needs to be replaced. However, reliable measurement can still be taken for another few hours before the tester becomes inaccurate.

1. Open the Battery Cover at the back of tester and remove the battery.
2. Replace with a 9V battery and install the cover.

## Calibration and Repair Services

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Extech offers complete repair and calibration services for all of the products we sell. For periodic calibration, NIST certification or repair of any Extech product, call customer service for details on services available. Extech recommends that calibration be performed on an annual basis to insure calibration integrity.

## Warranty

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EXTECH INSTRUMENTS CORPORATION warrants this instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 ext. 210 for authorization. A Return Authorization (RA) number must be issued before any product is returned to Extech. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit.

This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product.

The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.

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**Tech Support Hotlines**  
781-890-7440 ext. 200  
extech@extech.com

## Appendix A: Typical Light Levels

Lux	Foot Candles		Lux	Foot Candles	
		<b>Factories</b>			<b>Home</b>
20-75	2-7	Emergency Stairs, Warehouse	100-150	10-15	Washing
75-150	7-15	Exit/Entrance Passages	150-200	15-20	Recreational Activities
150-300	15-30	Packing Work	200-300	20-30	Drawing Room, Table
300-750	30-75	Visual Work: Production Line	300-500	30-50	Makeup
750-1,500	75-150	Typesetting: Inspection Work	500-1,500	50-150	Reading, Study
1,500-3,000	150-300	Electronic Assembly, Drafting	1,000-2,000	100-200	Sewing
		<b>Office</b>			<b>Restaurant</b>
75-100	7-10	Indoor Emergency Stairs	75-150	7-15	Corridor Stairs
100-200	10-20	Corridor Stairs	150-300	15-30	Entrance, Wash Room
200-750	20-75	Conference, Reception Room	300-750	30-75	Cooking/Dining Room
750-1,500	75-150	Clerical Work	750-1,500	75-150	Show Window
1,500-2,000	150-2000	Typing, Drafting			
		<b>Store</b>			<b>Hospital</b>
75-150	7-15	Indoors	30-75	3-7	Emergency Stairs
150-200	15-20	Corridor/Stairs	75-100	7-10	Stairs
200-300	20-30	Reception	100-150	10-15	Sick Room, Warehouse
300-500	30-50	Display Stand	150-200	15-20	Waiting Room
500-750	50-75	Elevator	200-750	20-75	Medical Exam Room
750-1,500	75-150	Show Window, Packing Table	750-1,500	75-150	Operating Room
1,500-3,000	150-300	Storefront, Show Window	5,000-10,000	500-1000	Eye Inspection

## Appendix B - Common Terms and Conversion Factors

Illuminance (Visible Flux Density)	1 lm/m <sup>2</sup> =	1 lux (lx)
		10 <sup>-4</sup> lm/cm <sup>2</sup>
		10 <sup>-4</sup> phot (ph)
		9.290 x 10 <sup>-2</sup> lm/ft <sup>2</sup>
		9.290 x 10 <sup>-2</sup> foot-candles
Luminance (Visible Flux Density per Solid Angle)	1 lm/m <sup>2</sup> /sr =	1 candela/m <sup>2</sup>
Luminous Intensity (Visible Flux per Solid Angle)	1 lm/sr =	1 candella
Luminous Flux (Visible Flux)	1 lumen (lm) =	1.464 x 10 <sup>-3</sup> watts @ 555 nm