

Models 401020 (Lux) and 401021 (Fc) Light Meter Adapters

- Connects to standard DMM for display
- Measures Tungsten, Fluorescent, Sodium, Mercury, and Daylight
- Status LED for power and low battery
- Battery operated



1. INTRODUCTION

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

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2. SPECIFICATIONS

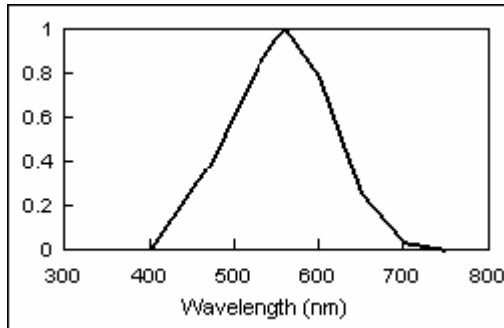
2.1 Electrical Specifications

| | |
|--------------------------------|--|
| Accuracy | ± (5% + 1mV) |
| Sensor | Exclusive photo diode & color correction filter spectrum designed to meet C. I. E. |
| Operating Temperature/humidity | 32°F to 122°F (0C to 50°C) / <90% RH |
| Power Supply | 006P DC 9V battery |
| Power Consumption | Approx. 6 mA DC |
| Low battery indication | Status LED on Front panel of Adaptor |
| Dimensions / Weight | 3.9x1.9x1" (100x50x25mm) / 0.33 lbs. (150g) |

2.2 Range Specifications

| Range | 401020 | 401021 | | |
|-------|--------------------|--------------------|-----------------|-----------------|
| | Measurement | Output to DMM | Measurement | Output to DMM |
| 1 | 0 to 2000 Lux | 0.1mV per 1 Lux | 0 to 200 Fc | 1mV per 1 Fc |
| 2 | 2000 to 20,000 Lux | 0.1mV per 10 Lux | 200 to 2000 Fc | 0.1mV per 1 Fc |
| 3 | 20k to 50k Lux | 0.1 mV per 100 Lux | 2000 to 5000 Fc | 0.1mV per 10 Fc |

2.3 Frequency Spectrum



4. OPERATION

- 4.1 Insure that a fresh battery is installed in the adapter by moving the Power/Range Select switch from the OFF position to one of the range select positions. If the Power ON light doesn't glow or if the Low Battery LED does glow, check the battery.
- 4.2 Connect the adapter to the COMMON and VOLTAGE inputs of a multimeter via the adapter's banana plugs. The polarity of the connection should be reversed if a negative light level reading is indicated on the multimeter.
- 4.3 Set the multimeter to the mV or higher DC voltage position. Adjust the range to suit your display needs. Do not use autorange if possible.
- 4.4 Select the maximum range via the Range Select Switch and move lower in range as needed.
- 4.5 Hold the Light Sensor so that it faces the light source to be measured. The multimeter's display will indicate light level readings. Refer to Sections 5 and 6 for additional measurement considerations.

5. CORRECTION FACTOR FOR DIFFERENT TYPES OF LIGHTING

The light adapter is calibrated using a precise "Standard tungsten light source of 2856⁰K". If the meter is to measure a different type of lighting, the correction factor table, below, should be applied to the readings. Multiply the multimeter readings by the factors in the right column for a particular lighting type shown in the left column.

| | |
|------------------|-------|
| MERCURY LAMP | x1.14 |
| FLUORESCENT LAMP | x1.08 |
| DAYLIGHT | x1.00 |
| SODIUM | x1.22 |
| METAL HALIDE | x1.00 |

6. RANGE SELECTION

The meter has three measurement ranges (0-200, 0-2000, and 0-5000 Fc) or (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.

7. BATTERY REPLACEMENT

When the Low Battery status LED glows, replace the battery as soon as possible. Open the Battery Compartment by removing the rear screw. Remove the battery, replace it with a fresh 9V battery and re-assemble the meter.

TYPICAL LIGHT LEVELS

| Lux | Foot Candles | | Lux | Foot Candles | |
|-------------|--------------|-------------------------------|--------------|--------------|----------------------------|
| | | Factories | | | Home |
| 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 |
| | | Office | | | Restaurant |
| 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 Room, Dining Table |
| 750-1,500 | 75-150 | Clerical Work | 750-1,500 | 75-150 | Show Window |
| 1,500-2,000 | 150-2000 | Typing, Drafting | | | |
| | | Store | | | Hospital |
| 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 |

COMMON CONVERSION FACTORS

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

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