



User Manual
RS PRO ILM 1335
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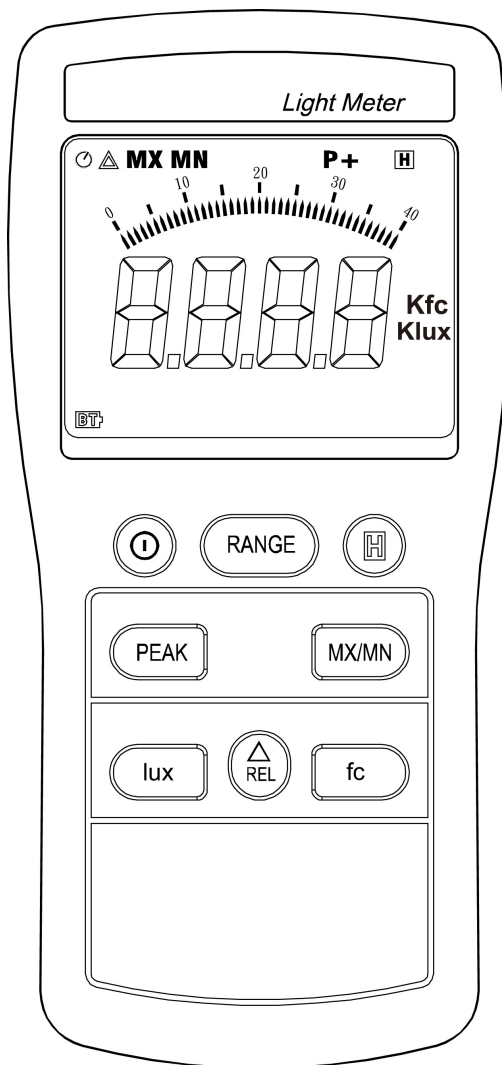


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1. INTRODUCTION

- The ILM 1335 digital light meter is a precision instrument used to measure illuminance (lux, footcandle).
- It meets CIE photopic spectral response.
- It is fully cosine corrected for the angular incidence of light.
- The meter is a compact, tough and easy to use instrument.
- The light sensitive component used in the meter is a very stable, long-life silicon photodiode and spectral response filter.
- **U.S. Pat. No. Des. 446,135**

2. FEATURES

- Light measurement ranging from 0.01 lux ~ 0.1 klux / 0.01 fc ~ 0.01 kfc, respectively.
- High accuracy and rapid response.
- Data-hold function
- Digital and analogue graphical display
- Automatic zeroing
- Meter corrected for spectral relative efficiency.
- No manual correction factor calculations for non-standard light sources.
- Short rise and fall times
- Peak-hold function
- Selectable scale – Lux or fc
- Auto power off after 30 minutes
- Maximum and minimum measurements
- Relative reading function
- User calibration factor (CAL) and spectral correction factor (SCF) function. (include LED)

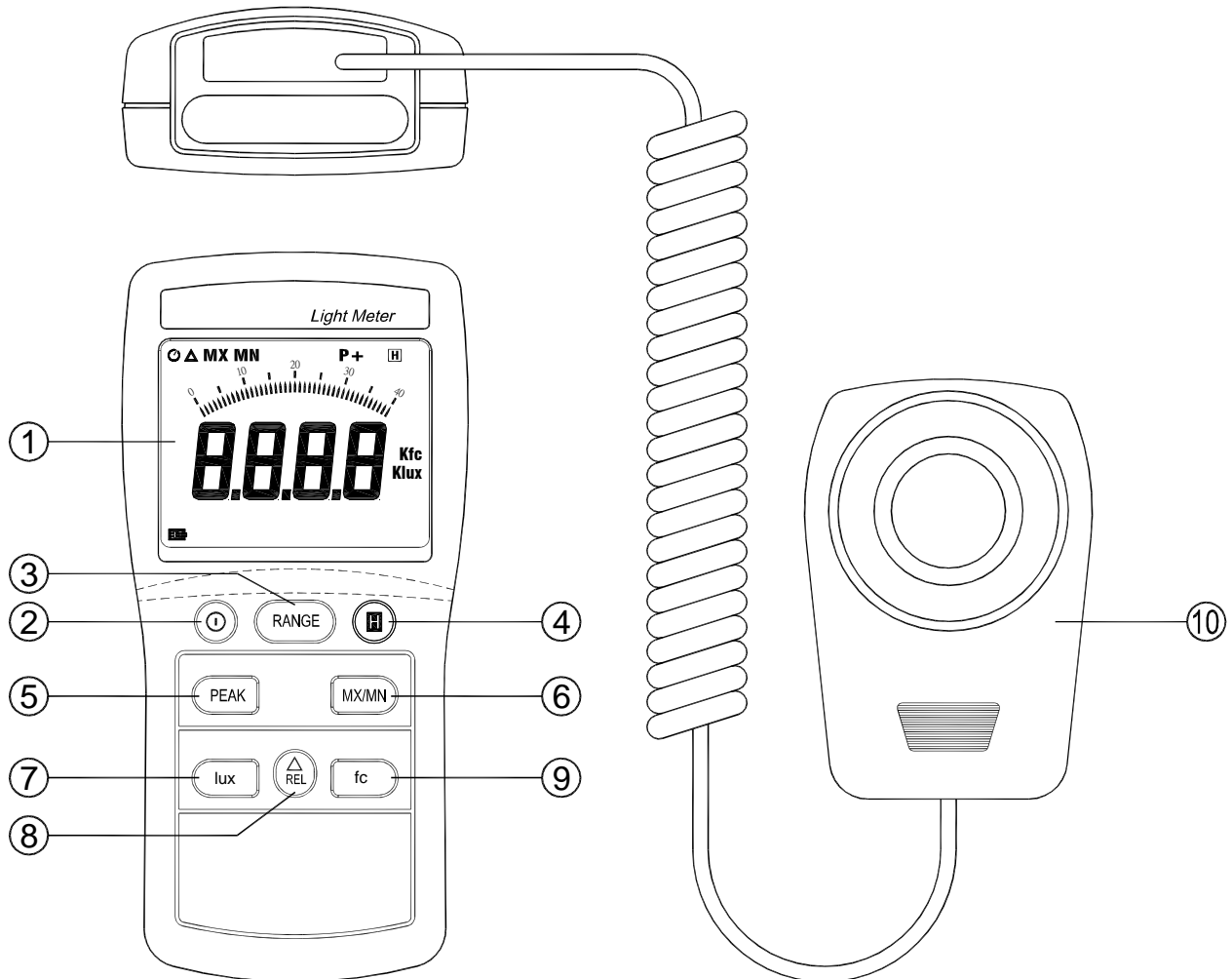
3. SPECIFICATIONS

- Display : 3-3/4 digit LCD with high speed 42 segment bargraph.
- Measuring Range : 40.00 lux, 400.0 lux, 4000 lux, 40.00 klux and 400.0 klux/40.00 fc, 400.0 fc, 4000 fc, 40.00 kfc.
Note : 1fc=10.76 lux , 1klux=1000 lux , 1kfc=1000 fc
- Overrange Display : LCD will show “OL” symbol.
- Spectral Response : CIE Photopic. (CIE human eye response curve).
- Spectral Accuracy : CIE V_{λ} function $f'_{\lambda} \leq 6\%$
- Accuracy : $\pm 3\%$ rdg $\pm 0.5\%$ f.s. ($\pm 4\%$ rdg ± 10 dgts as $> 10,000$ lux/fc range) .
(calibrated to standard incandescent lamp at colour temperature 2856 K).
- Repeatability : $\pm 2\%$.
- Temperature Characteristics : $\pm 0.1\%/^{\circ}\text{C}$.
- Sampling Rate : 13.3 times/sec for analogue bar-graph indication ; 1.3 times/sec for digital display.
- Photo Detector : Silicon photo diode and spectral response filter.



- Operating Temperature & Humidity :
0 to 40°C (32 to 104°F) & 0% to 80% RH.
- Storage Temperature and Humidity :
-10 to 50°C (14 to 140°F) & 0% to 70% RH.
- Power Source : 6 x 1.5V AAA batteries
- Battery life (typical) : 400 hours (zinc-carbon).
- Photo detector Lead Length : 150 cm (approx.).
- Photo detector Dimensions : 92 × 60 × 29 mm
- Meter Dimensions : 150 × 72 × 35 mm
- Weight : 320g.
- Accessories : Carry case, instruction manual and battery.

4. METER DIAGRAM



1. LCD Display : 3-3/4 digit display with a maximum reading of 3999, and the indicating signs of measured values, unit function symbols, and decimal points etc are displayed.

2. ON/OFF button.

3. Range Selector button: Sequential selection of 40.00 lux, 400.0 lux, 4000 lux, 40.00 klux, 400.0 klux or 40.00 fc, 400.0 fc, 4000 fc, 40.00 kfc. Total of 5 range for lux and 4 range for fc.
4. Data-Hold button
5. Peak Hold button
6. MX/MN button: Maximum and Minimum reading recall
7. Lux button : Pressing the “**Lux**” button selects taking measurement of illuminance in lux.
8. Relative Reading button
9. fc button : Pressing the “**fc**” button selects measurement of illuminance in footcandle scale; and, 1 footcandle = 10.76 lux.
10. Photo Detector.

5. OPERATING INSTRUCTIONS

1. Power-up : Press the power button to turn the meter ON or OFF.
2. Selecting the lux or fc scale : Set the range selection switch to desired lux or fc range.
3. Remove the photo detector cap and hold the sensor towards the light source in a horizontal position.
4. Read the illuminance nominal from the LCD display.
5. Overrange : If “OL” is shown on the display, the input signal is too strong and a higher range should be selected.
6. Data-Hold mode : Press the “**HOLD**” button to select Data-Hold mode. When HOLD mode is selected, the illuminance meter stops all further measurements.
Press the “**HOLD**” button again to exit DATA-HOLD mode and continue taking readings.
7. Peak-Hold recorder mode : Press “**PEAK**” button to enter the P+ recorder mode, and expose the photo detector to light pulse measuring field. Press “**PEAK**” button again to exit PEAK recorder mode, then the meter will resume normal operation.
8. Maximum and Minimum record mode : Press “**MX/MN**” button to cycle through Maximum (MX) reading, Minimum (MN) reading and current reading (MX/MN blink) recorder mode. Press “**MX/MN**” button for two seconds to exit this mode.



9. Relative reading mode : Press “ Δ REL” button to enter Relative mode. The display will show zero and the current reading will be stored as the zero reference value. Press again to exit this mode.
10. When the measurement is completed, replace the photo detector cap and turn the meter off.

6. SETTING the CALIBRATION FACTOR (CAL)

The CAL allows the user to calibrate the meter to any subject desired. It can be used to calibrate the meter to another standard subject for which the illuminance is known, to precisely standardize meters to the same subject.

1. Press **ⓘ** power button to turn on the meter.
2. Press “**HOLD**” button for 2 seconds to enter the setting mode, the “**Set1**” mark is displayed.
3. Press “**REL**” button to enter CAL setting mode.
4. Press “**RANGE**” button to position the cursor on the factor value element to adjust and press “**lux**” or “**fc**” button to change the selected element value from 0.800 to 1.500.
5. Press “**REL**” button to complete the action and exit.

7. SETTING the SPECTRAL CORRECTION FACTOR (SCF)

When measuring under a light source which has a considerably different spectral distribution from the meter calibration light source, the meter will cause an indication error due to a light deviation of the relative spectral response from spectral luminous efficiency (V_λ). To correct this error, the meter has SCF function, allowing you to set the SCF values. The SCF function can also be used for correction of indication errors between the meters and for user calibration under an accurately set light source.

In SCF mode, the following value is displayed.

Display value = Measurement value x SCF

1. Press **ⓘ** power button to turn on the meter.
2. Press **"HOLD"** button for two seconds to enter the setting mode, the **"SEt1"** mark is displayed.
3. Press **"RANGE"** button to select **"SEt2"**.
4. Press **"REL"** button to enter the SCF setting mode, the previously selected light source is displayed.
5. Press **"RANGE"** button to cycle select the desired light source.

"L0 uuHitE SCF 0.990": LED white daylight

"L1 rEd SCF 0.516": LED red light

"L2 grEEEn SCF 1.216": LED green light

"L3 bLUE SCF 1.475": LED blue light



- “**L4 YELLO SCF 0.815**”: LED yellow light
- “**L5 PUrPLE SCF 1.148**”: LED purple light
- “**L6 – L9 USEr SCF 1.000**”: User-specified
- “**U0 FLd SCF 0.994**”: Daylight fluorescent lamp
- “**U1 Fuu SCF 0.996**”: White fluorescent lamp
- “**U2 FL3 SCF 1.007**”: Three-way fluorescent lamp
- “**U3 HgL SCF 0.993**”: High-pressure mercury vapor lamp
- “**U4 nAL SCF 0.988**”: High-pressure sodium vapor lamp
- “**U5 Stb SCF 0.996**”: Standard light source B
- “**U6 StC SCF 0.995**”: Standard light source C
- “**U7 uut SCF 0.997**”: Equal-energy source (400 – 760nm)
- “**U8 – U9 USEr SCF 1.000**”: User-specified

6. Make a choice

- ① Press “**REL**” button to confirm the selected light source and exit this mode.
- ② Press “**MX/MN**” button to enter select YES “**y**” or NO “**n**” to return the factory all default value mode, the “**rE n**” mark is displayed.
Press “**RANGE**” button to select YES “**y**” or NO “**n**”, then press “**REL**” button to perform the selected and exit.
- ③ Press “**PEAK**” button to enter the selected light source SCF value setting mode, press “**RANGE**” button to position the cursor on the factor value element to adjust and press “**lux**” or “**fc**” button to change the selected element value from 0.200 to 5.000.
Press “**REL**” button to stored the SCF value and exit.

7. In the measurement mode, press “**lux**” button for 2 seconds to enter select enable or disable the SCF function mode, press “**RANGE**” button to select “**on**” or “**OFF**” then press “**REL**” button to stored the selected and exit.
If select “**on**” will enable SCF function, the bargraph “**–**” mark will blinking displayed.
8. In the measuring mode, press “**fc**” button for 2 seconds to will show the previously selected light source and the SCF value for 3 seconds.

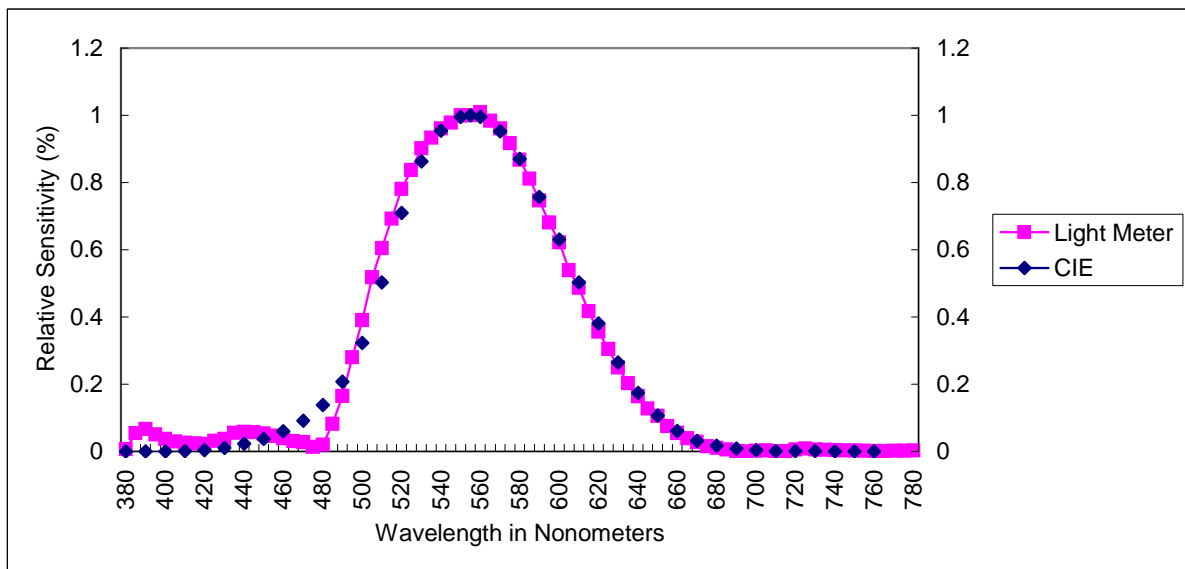
8. BATTERY CHECK & REPLACEMENT

Note: The condition of the battery should be checked prior to use and changed if necessary. The LCD display will show “**BT**” symbol when the battery power is not sufficient for accurate testing.

1. Remove discharged battery and insert new one, respecting the correct polarity.
2. Dispose of the removed batteries is accordance with local regulations.
3. If the instrument is likely to remain unused for a long period it is advised to remove the batteries.

9. SPECTRAL SENSITIVITY CHARACTERISTICS

- The response of the photo diode with the filters gives a spectral sensitivity characteristic of the meter which almost matches the C.I.E. (INTERNATIONAL COMMISSION ON ILLUMINATION) photopic curve $V(\lambda)$ as shown in the following chart.



10. MAINTENANCE

1. The white plastic disc on the top of the detector should be cleaned with a damp cloth when necessary.
2. Do not store the instrument where temperature or humidity is excessively high.
3. The reference level, as marked on the face plate, is the tip of the photo detector globe.
4. The calibration interval for the photo detector will vary according to operational conditions, but generally the sensitivity decreases in direct proportion to the product of luminous intensity and the operational time. In order to maintain the basic accuracy of the instrument, periodic calibration is recommended.

11. RECOMMENDED ILLUMINATION

1fc = 10.76 Lux

LOCATIONS	Lux	fc
● OFFICE		
Conference, Reception room.	200 ~ 750	18 ~ 70
Clerical work	700 ~ 1,500	65 ~ 140
Typing drafting	1000 ~ 2,000	93 ~ 186
● FACTORY		
Visual work at production line	300 ~ 750	28 ~ 70
Inspection work	750 ~ 1,500	70 ~ 140
Electronic parts assembly line	1500 ~ 3,000	140 ~ 279
Packing work, Entrance passage	150 ~ 300	14 ~ 28
● HOTELS		
Public room, Cloakroom	100 ~ 200	9 ~ 18
Reception	200 ~ 500	18 ~ 47
Cashier	750 ~ 1000	70 ~ 93
● STORES		
Indoors Stairs Corridor	150 ~ 200	14 ~ 18
Shop window, Packing table	750 ~ 1,500	70~140
Forefront of shop window	1500 ~ 3,000	140 ~279
● HOSPITALS		



Sickroom, Warehouse	100 ~ 200	9 ~ 18
Medical Examination room	300 ~ 750	28 ~ 70
Operating room		
Emergency Treatment	750 ~ 1,500	70 ~ 140
• SCHOOLS		
Auditorium, Indoor Gymnasium	100 ~ 300	9 ~ 28
Class room	200 ~ 750	18 ~ 70
Laboratory, Library, Drafting, room	500 ~ 1,500	47 ~ 140