Illuminance meters that conform to JIS AA Class and DIN Class B requirements.
Compatible with new, next-generation light sources including PWM-controlled sources

Can be used for simple, inexpensive multi-point measurements.
Mini receptor model also available to enable illuminance measurements even in narrow spaces.
For simple but accurate illuminance measurements. Makes creating illuminance measurement systems such as multi-point measurement systems easy!

Reliable, worry-free illuminance meters that conform to JIS AA Class and DIN Class B

Illuminance Meters T-10A and T-10MA conform to Class AA of JIS C 1609-1: 2006 "Illuminance meters Part 1: General measuring instruments" and DIN 5032 Part 7 Class-B "Photometry; classification of illuminance meters and luminance meters" requirements to provide high accuracy, high reliability, worry-free measurements.

Illuminance meters conforming to these standards are required for measurements of general illumination light sources, white LED lamps for illumination, etc. in a variety of industrial fields.

Removable receptor

The receptor and main body can be detached from each other and then connected using a LAN cable, making it easy to install as part of an inspection system.

Multi-point illuminance measuring system

- 9-point example: Projectors, etc.
- 5-point example: Architectural lighting, etc.
- 25-point example: Street lighting, etc.

[T-10A 9-point measuring system composition]
- Illuminant Meter T-10A
- T-10A Receptor head 8 units
- Adapter units for Main Body T-A20 1 unit
- Adapter units for Receptor Head T-A21 9 units
- AC Adapter 1 unit
- Data Management Software T-S10w 1 set

Main applications

- Government testing organizations
- Research/inspection at illumination equipment makers
- Maintenance at factories, offices, hospitals, etc.
- Illuminance control of security lighting, street lighting, etc.
- As sensor for equipment measuring light-distribution characteristics, etc.

Compatible with PWM-controlled lighting. Enables measurements of next-generation light sources.

Conventional illuminance meters often cannot accurately measure PWM-controlled light sources, but the T-10A series of illuminance meters can be used to accurately measure even such light sources.

Easy, inexpensive multi-point measurement (2 to 30 points).

Illuminance distribution of a projector etc. can be easily measured with a single instrument and several receptors.

Multi-point illuminance measuring system

- 5-point example: Architectural lighting, etc.
- 9-point example: Projectors, etc.
- 25-point example: Street lighting, etc.

Conforms to JIS AA Class and DIN class B

Can be used for general measurements of illuminance.

Conforms to JIS AA Class and DIN class B

Can be used for illuminance measurements of small areas.

Can be used for illuminance measurements in narrow spaces where the standard receptor won’t fit. It can also be easily installed on various kinds of equipment or jigs for measuring light levels such as illumination.

The mini receptor and cord are both waterproof, so they can be used for measurements in water. They can be used for illuminance control for fishery-related applications (such as fish farming, etc.) or for measuring outdoor illuminance on rainy days.
multi-point measurement systems easy!

**Data Management Software T-S10w (Optional accessory)**

Convenient, easy-to-use Excel® add-in software

Reads measurement data from T-10A series Illuminance Meters directly into Excel®. Further processing of data can then be performed easily using the various functions of Excel®.

Main specifications of Data Management Software T-S10w

<table>
<thead>
<tr>
<th>Type</th>
<th>Add-in for Excel® (Excel® is required to use this add-in)</th>
</tr>
</thead>
</table>

Compatible instruments: T-10A, T-10MA, T-10WA, T-10G, T-10WM, T-10BG, T-10BM.

Relative Spectral Responsivity

Ideally, the relative spectral responsivity of the illuminance meter should match V(λ) of the human eye for photopic vision. As shown in the graph above, the relative spectral responsivity of Konica Minolta Illuminance Meters T-10A/10MA is within 6% (f1) of the CIE spectral luminous efficiency V(λ).

CIE: Commission Internationale de l’Eclairage

f1 (CIE symbol): The degree to which the relative spectral responsivity matches V(λ) is characterized by means of the error f1.

Cosine Correction Characteristics

Since the brightness at the measurement plane is proportional to the cosine of the angle at which the light is incident, the response of the receptor must also be proportional to the cosine of the incidence angle. For Konica Minolta Illuminance Meters T-10A/10MA, the cosine response f2 is within 3%.

The graph above shows the cosine correction characteristics of Konica Minolta Illuminance Meters T-10A/10MA.

About PWM-controlled lighting

PWM is the abbreviation of Pulse Width Modulation, and refers to the method of controlling signal intensity by controlling the ratio between the ON period and OFF period of a pulse signal.

A pulse signal is a signal which repeatedly alternates between ON and OFF, and the percentage of ON period during a single cycle is referred to as the "duty cycle". PWM-controlled lighting is a method for controlling the brightness of a lamp by controlling the duty cycle (lit time) of light from a pulse-emission source. As the lit time becomes longer, the light becomes brighter, and conversely, as the lit time becomes shorter the light becomes darker.

**Konica Minolta’s Illuminance Measurement Trio**

Konica Minolta’s line of instruments for measuring illuminance includes not only the Illuminance Meter T-10A which can measure PWM-controlled light sources, but also the Chroma Meter CL-200A which can measure color temperature and the Illuminance Spectrophotometer CL-500A which can measure color-rendering properties.

**Illuminance Meter T-10A**

Conforms to DIN Class B and JIS AA Class. Capable of accurately measuring next-generation lamps including PWM-controlled lighting. Multiple receptors can be used for easy, low-priced, multi-point measurement, and a miniature receptor model is also available for easily measuring illuminance in narrow spaces.

**Chroma Meter CL-200A**

A de-facto industry standard for color-temperature measurement. Can also perform illuminance measurements (JIS AA Class). Compact and lightweight with removable receptor connectable with extension cables. Includes simple, convenient PC software as standard accessory.

**Illuminance Spectrophotometer CL-500A**

The first illuminance spectrophotometer to conform to both JIS AA Class and DIN Class B requirements. Compact, handheld type can easily be installed in inspection equipment and is ideal for evaluating color-rendering properties. Includes simple, convenient PC software as a standard accessory.

**Illuminance-modified Spectroradiometer CS-2000A**

Measurements of spectral irradiance are made possible by using the illuminance adapter. This makes it ideal for illuminance evaluation of projectors and LED or EL lighting. This single instrument can be used for measuring both spectral radiance and spectral irradiance. Our top-of-the-line CS-2000A is used for measuring various types of high-definition displays, and received the 13th Advanced Display of the Year 2008 Grand Prize in the Display Testing Equipment Category.
Main Specifications of T-10A

**Model**

<table>
<thead>
<tr>
<th>Description</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illuminance Meter (Standard receptor)</td>
<td>T-10A</td>
</tr>
<tr>
<td>Illuminance Meter (Mini receptor head)</td>
<td>T-10MA</td>
</tr>
<tr>
<td>Illuminance Meter (Waterproof mini receptor head)</td>
<td>T-10WLA</td>
</tr>
</tbody>
</table>

**Type**

Multi-function digital illuminance meter with detachable receptor head (Multi-point measurements of 2 to 30 points is possible)

**Illuminance meter class**

Conforms to requirements for Class AA of JIS C 1609-1: 2006 "Illuminance meters Part 1: General measuring instruments" Conforms to DIN 5032 Part 7 Class B

**Receptor**

Silicon photocell

**Relative spectral responsivity**

Within 6% (f1´) of the CIE spectral luminous efficiency V. (V)

**Cosine correction characteristics**

Within ±0.1°

**Measurement range**

Illuminance: 0.01 to 299,900 lx; 0.001 to 29,990 fcd

**Illuminance ratio (%).**

0.1 to 999,900 lx; 0.01 to 999,900 fcd

**Illuminance difference (lx).**

0.01 to 999,900 lx; 0.001 to 999,900 fcd

**Illuminance integration time (h).**

0.01 to 999,900 lx; 0.001 to 999,900 fcd

**Weight (without battery)**

300 g (7.0 oz.)

**Dimensions (Units: mm)**

Length

174 x 174 x 35 mm

Depth

69 x 161.5 x 30 mm

Height

35 mm

**Battery performance**

72 hours or longer (when alkaline batteries are used in continuous measurement)

**Power**

AA-size batteries / AC adapter AC-A308 (optional; for 1 to 10 receptors)

**Display**

3 or 4 Significant-digit LCD with backlight illumination (Automatic Illumination)

**Power supply**

AC adapter AC-A308 (optional; for 1 to 10 receptors) or AC adapter AC-A311 (optional; for 1 to 30 receptors)

**Battery lifetime**

8 hours

**Accuracy**

Within ±0.1 lx when using alkaline batteries

**Measurement range**

Auto range (5 manual ranges at the time of analog output)

**User calibration function**

CCF (Color Correction Factor) setting function: Measurement value x 0.500 to 2.000

**Measurement speed**

2 times/sec. (continuous measurement with 1 receptor head)

**Temperature/ humidity drift**

Within ±3%

**Environment**

Temperature: 5 to 40°C, relative humidity of 85% or less

**Storage temperature/ humidity range**

-20 to 55°C, relative humidity 85% or less

**Display**

Resolution: 0.01 lx; 0.01 fcd

**Temperature/ humidity range**

0 to 55°C, relative humidity of 85% or less (at 35°C) with no condensation

**Response time**

90% response time: 28 ms

**Illuminance ratio (%).**

0.01 to 999,900 lx; 0.001 to 999,900 fcd

**Illuminance difference (lx).**

0.01 to 999,900 lx; 0.001 to 999,900 fcd

**Illuminance integration time (h).**

0.01 to 999,900 lx; 0.001 to 999,900 fcd

**Weight (without battery)**

200 g (7.0 oz.)

**Data recording using printer**

Cap (with Strap)

2 pcs.

**RS-232C printer**

T-A13

**PC**

T-A14 (commercially available)

**LAN (10 BASE-T)**

Category 5 straight cable (commercially available)

**Multi-point measurement requires use of optional AC adapter.**

**Adapters**

Adapter for Main Body T-A20

**System Diagram**

PC (commercially available)

USB Cable T-A15

**Hard Case CL-A10**

(Optional accessories)

**Additional receptors (sold separately; Product includes 1 receptor according to model purchased)**

T-10MA/ T-10WSA/ T-10WLA

**For multi-point and cable extension measurement**

Adapter Unit for Receiver Head T-A21

**Example of cable extension**

LAN (10 BASE-T) category 5 straight cable (commercially available)

**Dimensions (Units: mm)**

For correct use and for your safety, be sure to read the instruction manual before using the instrument.

Always connect the instrument to the specified power supply voltage. Improper connection may cause a fire or electric shock.

Be sure to use the specified batteries. Using improper batteries may cause a fire or electric shock.

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Some lamp control methods may make accurate measurements difficult. For details, please contact your nearest Konica Minolta sales office or dealer.

For additional information, please refer to the KONICA MINOLTA Worldwide Offices web page.

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