KONICA MINOLTA

Compatible with PWM-controlled sources

Illuminance Meter
T-10A series

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.

The Standard in Measuring Color & Light

Giving Shape to Ideas

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.

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.

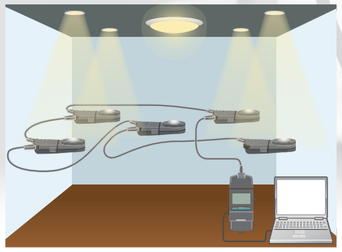
Easy, inexpensive multi-point measurement (2 to 30 points).

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

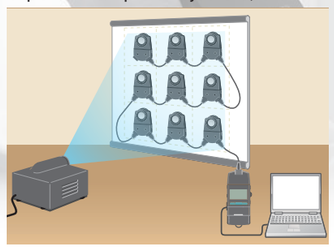


Multi-point illuminance measuring system

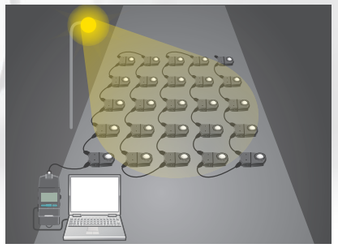
- 5-point example: Architectural lighting, etc.



- 9-point example: Projectors, etc.



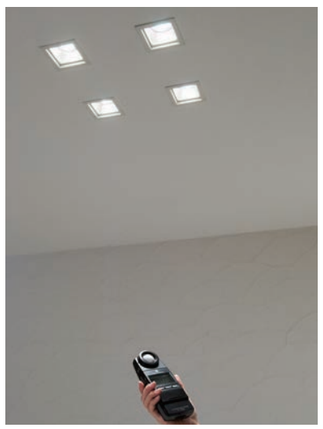
- 25-point example: Street lighting, etc.



[T-10A 9-point measuring system composition]

Illuminant Meter T-10A	1 unit
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

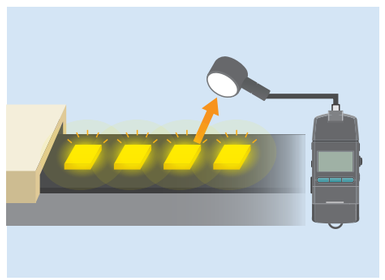
Main applications



- 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.



<Standard receptor>

<Mini receptor>



T-10A

Conforms to JIS AA Class and DIN class B

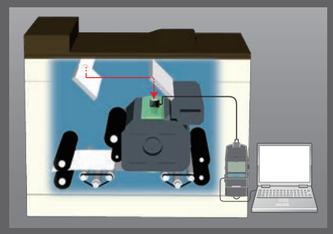
Can be used for general measurements of illuminance.

T-10MA (Cord length: 1 m)

Conforms to JIS AA Class and DIN class B

Enables 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.



T-10W$_S$A (Cord length: 5 m)
T-10W$_L$A (Cord length: 10 m)

Conforms to JIS requirements for special illuminance meters

Waterproof | Custom order

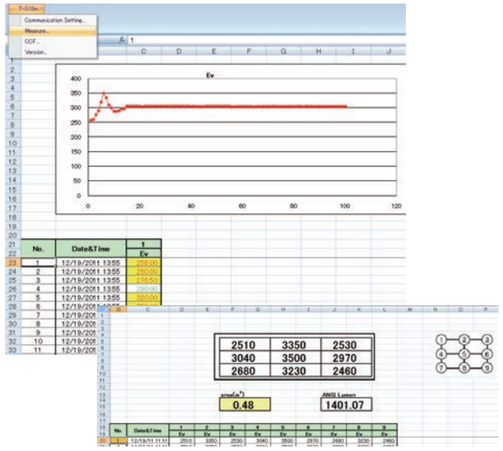
The mini receptor and cord are both waterproof, so they can be used for measurements in water.
They can be used for illuminance control for fishery-related applications (such as fish farming, etc.) or for measuring outdoor illuminance on rainy days.

multi-point measurement systems easy!

Data Management Software T-S10w (Optional accessory)

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

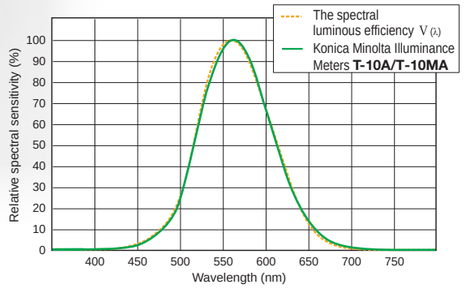
Reads measurement data from T-10A series Illuminance Meters directly into Excel®. Further processing of data can then be performed easily using the various functions of Excel®.



Main specifications of Data Management Software T-S10w

Type	Add-in for Excel® (Excel® is required to use this add-in.)
Operating environment	One of the following environments is required for Excel® to operate. OS: Windows® 10 Pro 32bit/64bit Windows® 11 Pro OS language: English, Japanese, Simplified Chinese, Traditional Chinese Application software: Excel® 2016 32bit Excel® 2019 32bit Excel® 2021 32bit For details on system requirements for the above versions of Windows® and/or Excel®, refer to their respective specifications
Compatible instruments	T-10series (T-10, T-10M, T-10W$_S$, T-10W$_L$) T-10Aseries (T-10A, T-10MA, T-10W$_S$A, T-10W$_L$A)

Relative Spectral Responsivity

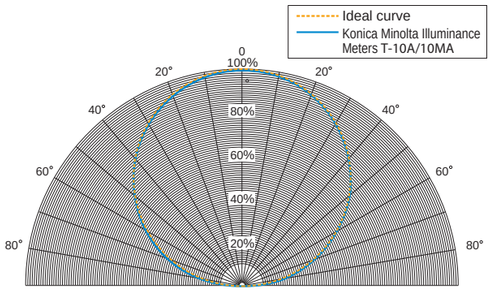


Ideally, the relative spectral responsivity of the illuminance meter should match V (λ) of the human eye for photopic vision.
As shown in the graph above, the relative spectral responsivity of Konica Minolta Illuminance Meters T-10A/10MA is within 6% (f1′) of the CIE spectral luminous efficiency V (λ).

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′.

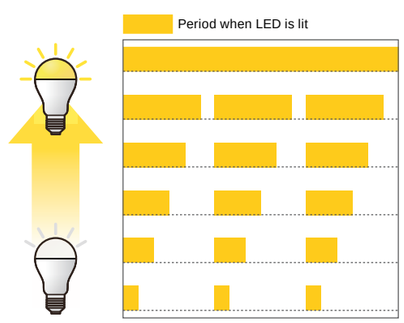
Cosine Correction Characteristics



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

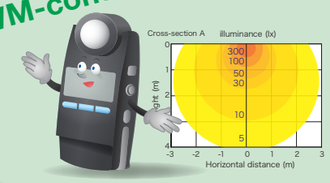
PWM is the abbreviation of Pulse Width Modulation, and refers to the method of controlling signal intensity by controlling the ratio between the ON period and OFF period of a pulse signal.
A pulse signal is a signal which repeatedly alternates between ON and OFF, and the percentage of ON period during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

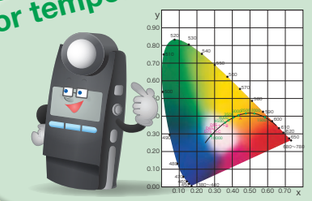
Illuminance meter that can handle PWM-controlled lighting



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.

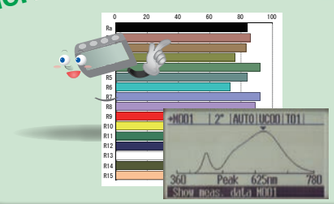
Measures color temperature



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.

Measures color-rendering properties



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.

* Both CL-200A and CL-500A can measure PWM-controlled lighting.

Illuminance measurement with the CS-3000 series specatroradiometer

An adapter that attaches to the lens unit to enable spectral irradiance measurement with a spectrum wavelength width of 5 nm or less, and accuracy conforming to Class AA general illuminance meter of JIS C 1609-1: 2006 (Illuminance Meters Part 1: General Measuring Instruments).

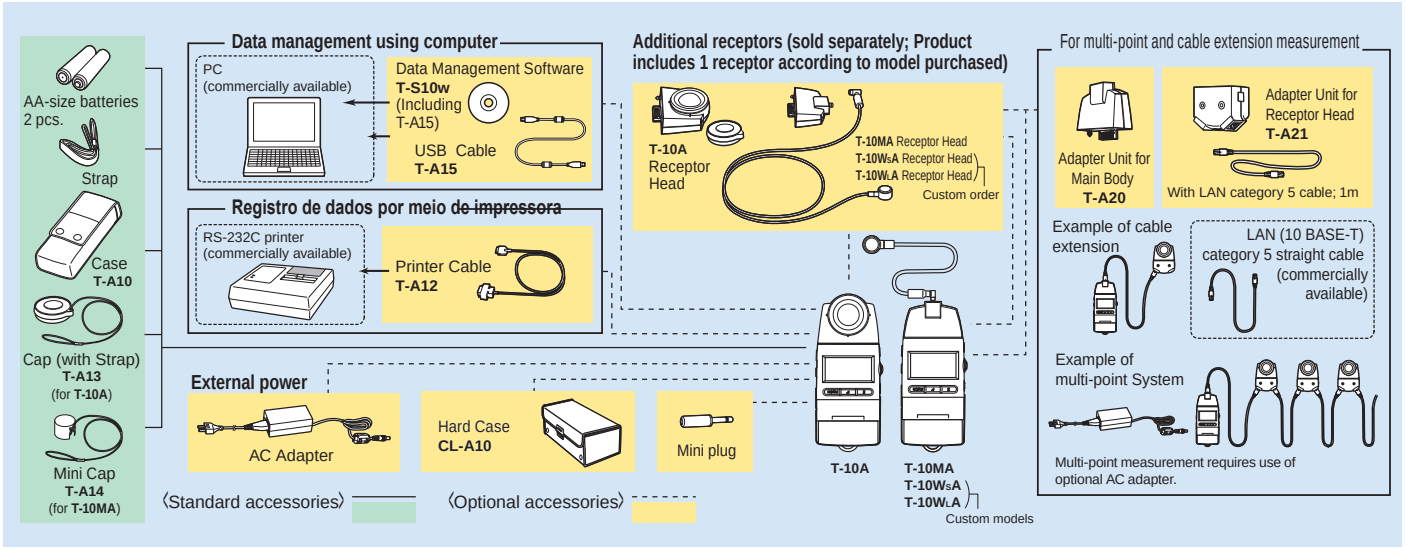
When you remove the illuminance adapter, it reverts to a spectroradiometer, so it serves two purposes.

The CS-3000 series has three models in its lineup: the flagship model CS-3000HDR, the standard model CS-3000, and the cost-effective model CS-2000Plus, which is a high-speed calculation CPU and a new algorithm, INTELLIGENT DARK function, based on the conventional CS-2000 model.

Measurement illuminance range
(With CS-3000 HDR in light source A spectrum)
Measurement angle1° : 0.01 to 1,400,000 lx
Measurement angle0.2° : 0.25 to 35,000,000 lx
Measurement angle0.1° : 1 to 140,000,000 lx



System Diagram



Main Specifications of T-10A

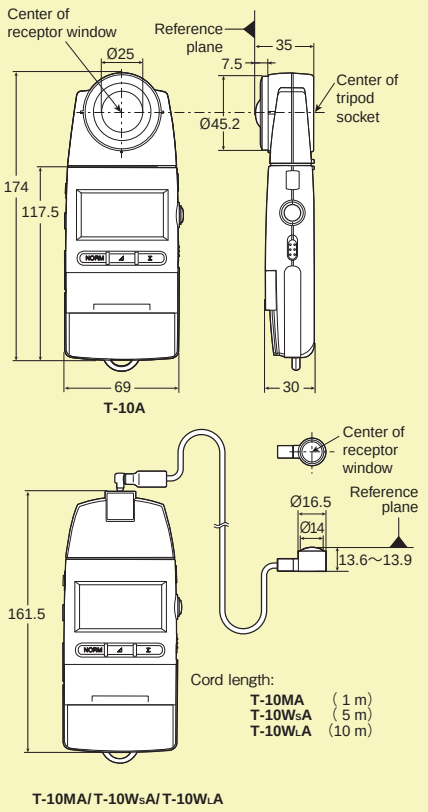
Model		Illuminance Meter T-10A (Standard receptor head)	Illuminance Meter T-10MA (Mini receptor head)	Illuminance Meter T-10WsA (Waterproof mini receptor head)	Illuminance Meter T-10WLA (Waterproof mini receptor head)
Type		Multi-function digital illuminance meter with detachable receptor head (Multi-point 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		Conforms to requirements for special Illuminance meters of JIS C 1609-1: 2006 *1	
Receptor		Silicon photocell			
Relative spectral responsivity		Within 6% (f_1') of the CIE spectral luminous efficiency V (λ)			
Cosine correction characteristics (f_2)		Within 3%		Within 10%	
Measuring range		Auto range (5 manual ranges at the time of analog output)			
Measuring function		Illuminance (lx). illuminance difference (lx). illuminance ratio (%). integrated illuminance (lx·h). integration time (h). average illuminance (lx).			
Measuring range	Illuminance	0.01 to 299,900 lx; 0.001 to 29,990 fcd		1.00 to 299,900 lx; 0.1 to 29.990 fcd *2	
	Integrated illuminance	0.01 to 999,900 x 10^3 lx·h 0.001 to 99,990 x 10^3 fcd·h / 0.001 to 9999 h			
User calibration function		CCF (Color Correction Factor) setting function: Measurement value x 0.500 to 2.000			
Linearity		±2% ±1 digit of displayed value			
Temperature/ humidity drift		Within ±3%			
Measurement speed		2 times/sec. (continuous measurement with 1 receptor head)			
Computer interface		USB			
Printer output		RS-232C			
Analog output		1 mV/digit, 3 V at maximum reading; Output impedance: 10 KΩ; 90% response time: 28 ms			
Display		3 or 4 Significant-digit LCD with backlight illumination (Automatic illumination)			
Power		2 AA alkaline batteries(Commercially available) / AC adapter AC-A412 (optional; for 1 to 30 receptors)			
Battery performance		72 hours or longer (when alkaline batteries are used) in continuous measurement			
Operation temperature /humidity range		-10 to 40°C, relative humidity 85% or less (at 35°C) with no condensation		5 to 40°C, relative humidity of 85% or less (at 35°C) with no condensation	
Storage temperature / humidity range		-20 to 55°C, relative humidity 85% or less (at 35°C) with no condensation		0 to 55°C, relative humidity of 85% or less (at 35°C) with no condensation	
Size (W x D x H)		69 x 174 x 35 mm	Main body: 69 x 161.5 x 30 mm Receptor: Ø16.5 x 13.8 mm		
Cord length		–	1 m	5 m	10 m
Weight (without battery)		200 g (7.0 oz.)	205 g	260 g (Receptor head only: 120 g)	340 g (Receptor head only: 200 g)

*1 Conforms to requirements for Class AA of JIS C 1609-1: 2006 for all items except cosine response (f_2).
*2 Although measurements below 1.00 lx are possible, they may not be stable due to the effects of electrical noise.

<Notes regarding mini receptors and waterproof mini receptors>
* Do not touch the cable during measurements. Doing so may result in unstable measurement values.
* Secure the cable during measurements. Failure to do so may result in unstable measurement values.

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- Windows® and Excel® are trademarks of Microsoft Corporation in the USA and other countries.
- The specifications and appearance shown herein are subject to change without notice.
- Screens shown are for illustration purpose only.
- Some lamp control methods may make accurate measurements difficult. For details, please contact your neareset Konica Minolta sales office or dealer.

Dimensions (Units: mm)



SAFETY PRECAUTIONS

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.

ISO Certifications of KONICA MINOLTA, Inc., Sakai Site

ISO 9001 JQA-QMA15888 Design, development, manufacture/ manufacturing management, calibration, and service of measuring instruments

ISO 14001 JQA-E-80027 Design, development, manufacture, service and sales of measuring instruments

CONTACT US - Global Network
https://www.konicaminolta.com/instruments/network/index.html

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