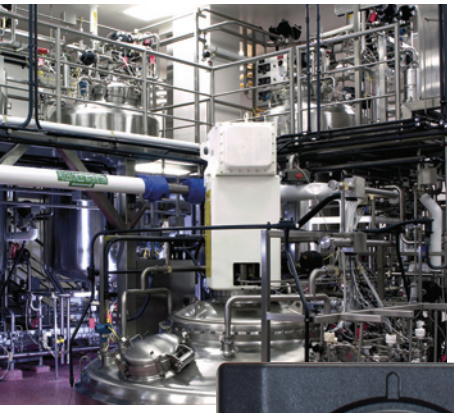
YOKOGAWA

# Digital Lux Meter

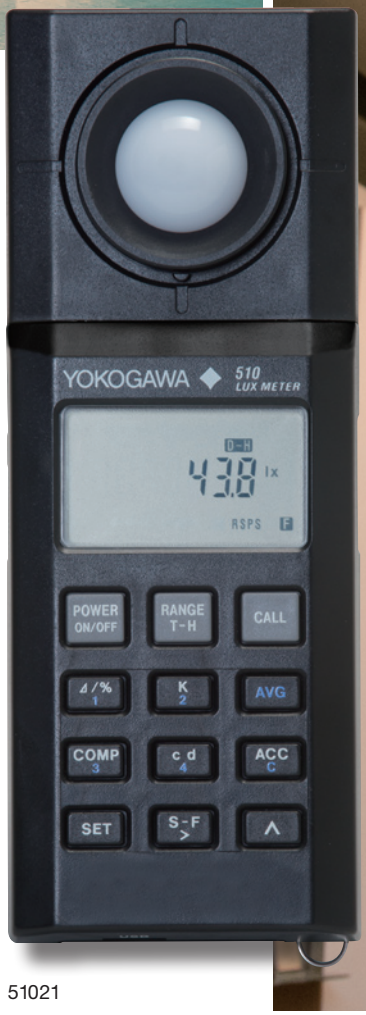
## 510 series

### Excellent Performance and Multi Functions

- Simple Function Type : 51011, 51012
- Multi Function Type : 51021




51011, 51012




51021

Yokogawa Meters & Instruments Corporation

Bulletin 510-EN

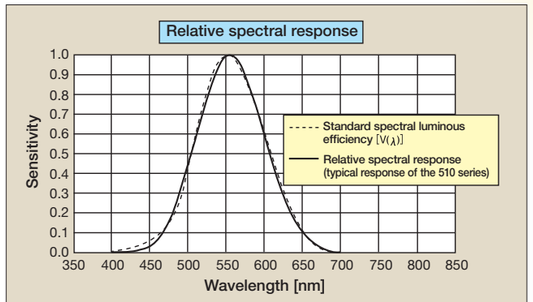
# Excellent Performance, Multiple Functions — 510 Series Digital Lux Meter

## Wide range, high accuracy

- Simple Function Type
  51011: 0.0 to 999,000 lx (5range), ±4%rdg±1dgt
  51012: 0.0 to 999,000 lx (5range), ±2%rdg±1dgt
- Multi Function Type
  51021: 0.00 to 999,000 lx (6range), ± 2%rdg±1dgt

## Excellent characteristics <1> ----Visible region relative spectral response

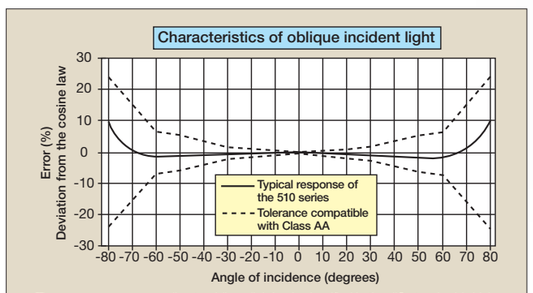
The relative spectral response of the lux meter should ideally be the same degree of brightness as V(λ), which is the unit of brightness to which human beings are considered sensitive. In the JIS standard, the system of evaluating the characteristics of the visible region relative spectral response is adopted in order to bring the relative spectral response of the lux meter much closer to this ideal. The following diagram shows the relative spectral response (typical response) of the 510 series lux meter which conforms to this system.




*The method of evaluating the performance determined by the Commission Internationale de l'Eclairage (International Commission on Illumination) (CIE) has been adopted in the JIS standard (which the 510 series conforms to) for evaluating the relative spectral response. This response is classified according to its degree.

## Excellent characteristics <2> ----Oblique incident light

To measure the intensity of illumination from a light source in an oblique direction accurately, there is a necessity that the angle of incidence to the perpendicular line from the target of the surface is in proportion to the cosine law.

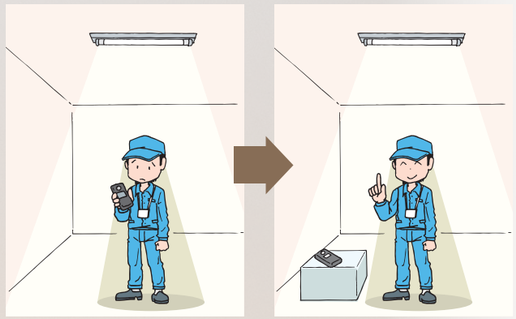



*The accuracy corresponding to oblique lighting is classified in the JIS standard (which the 510 series conforms to) according to its degree to bring the characteristics of the oblique lighting on the illuminance meter much closer to the cosine law.


51011, 51012

## Timer hold function

This function is added so that the shadow of the user or reflections from clothes do not affect the measuring intensity of illumination. Like an selftimer function of a camera, a measured value is held five seconds after the switch has been pressed. The 51021 lux meter can be set arbitrarily from 1 to 999 seconds.



Conventional Lux meter　　510 series Lux meter


51021

## Color correction factor setting function

The 510 series lux meter measures the intensity of illumination more accurately because its sensitivity approximates to the standard spectral luminous efficiency which is the same sensitivity as the human eye. However, since spectral characteristics differ depending on the light source types, a subtle indication error occurs. The 51021 lux meter incorporates a function to correct this error. (Factor fixed: 8 types; arbitrary factor setting: 21 types)

## Light source luminous intensity measurement function

The luminous intensity (candela) can be measured easily by setting the distance from the light source (0.01 to 99.99m).

## Average illuminance computation function (correspondence to 4-point and 5-point methods)

This function automatically calculate 4 or 5 points average of illumination.
JIS C 7612 [Illuminance Measurements for Lighting Installations] describes how to calculate the average illuminance using the 4-point and 5-point methods.

## USB function (Power supply and communication)

- With the USB interface, it can be used as a power supply source for continuous measuring with recorder output or/and USB communication.

## Specifications

∗:At 23± 2˚C
Accuracy: ±% of reading ± effective min. digit

| Model | 51011 | 51012 | 51021 |
|---|---|---|---|
| Standard | Conforms to class A of JIS C1609-1 2006 "Illumination Meter" | | Conforms to class AA of JIS C1609-1 2006 "Illumination Meter" |
| Photoelectric element | Silicon photodiode | | |
| Display | Liquid crystal display (number of 7 digits);maximum effective display:999; (0 or 0's to indicate the number of digits) | | |
| Measurement cucle | Twice per second | | |
| Measuring range | 0.0 to 99.9/999/9,990/99,900/999,000lx | | 0.00 to 9.99/99.9/999/9,990/99,900/999,000lx |
| Accuracy(*) | ±4% rdg ±1dgt (under 3000lx)<br>±6% rdg ±1dgt (over 3000lx) | ±2% rdg ±1dgt (under 3000lx)<br>±3% rdg ±1dgt (over 3000lx) | |
| Response time | Automatic range : 5 sec; Manual range: 2 sec | | |
| Fatigue characteristics | ±2% | ±1% | |
| Temperature characteristics | ±5% | ±3% | |
| Characteristics of oblique incident light | Angle of :10° ±1.5%<br>30° ±3%<br>60° ±10%<br>80° ±30%<br>(deviation from cosine law) | Angle of : 10° ±1%<br>30° ±2%<br>50° ±6%<br>60° ±7%<br>80° ±25%<br>(deviation from cosine law) | |
| Characteristics of visible-spectrum response | Deviation from the standard spectral luminous efficiency: f1' within 9 % | Deviation from the standard spectral luminous efficiency: f1' within 6 % | |
| Operating temperature / humidity | -10 to 40℃ 80% RH or less ;no moisture condensation | | |
| Function | Response switching, Range Hold, Timer Hold, Deviation display, Auto power off | | Response switching, Range Hold, Timer Hold, Deviation display, Auto power off, Color correction factor setting, Average illuminance computation, Ripple measurement, Light source luminous intensity measurement, Measurement of totalized intensity of illumination |
| Communication | USB (Mini-b 5pin) | | |
| Output | DC 1V ±5%(fixed range); load resistance: 100kΩ or more | | |
| Dimensions, weight | Approx. 67(W) x 177(H) x 38(D) mm; Approx. 260g | | |
| Power supply | AA (LR6) x 2 OR USB supply (5VDC ±5%) | | |
| Accessories attached | Instruction manual; dry cell(built in); soft case; recorder output plug | | |

## Spare parts

| Name | Model | Specification |
|---|---|---|
| Soft case | RB038A | For 51011/12/21 |
| Recorder output Plug | JC017A | For recorder output |

## Accessories (Sold separately)

| Name | Model | Specification |
|---|---|---|
| Extension cable for light detector | 91001 | 3m |
| Extension cable for light detector | 91002 | 30m |


YOKOGAWA
Yokogawa Meters & Instruments Corporation

World Wide Web site at
**http://tmi.yokogawa.com**


⚠NOTICE
● Before using the product, read the instruction manual carefully to ensure proper and safe operation.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Subject to change without notice. [Ed: 05/b] Printed in Japan: Sep. 2013(C)/ (KP)