



**TOKYO DEVICES**

# IWS660-CS

General Purpose USB Illuminance Sensor

Revision 1.1



The IWS660 is a USB illuminance sensor. It can easily capture ambient light in lux units and import it directly into a PC. With bus-powered operation, it requires no additional power supply. Its lightweight, compact package with a flange makes installation easy. Additionally, the control commands compatible with Windows and Linux enable seamless integration with custom applications and facilitate data logging.

## IMPORTANT NOTICE

Tokyo Devices, Inc. and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Tokyo Devices, Inc. and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Tokyo Devices, Inc. and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application. Any contents of this document are subject to change without notice. Tokyo Devices and the TD logo are registered trademarks of Tokyo Devices, Inc. in Japan.

## 注意事項

東京デバイス株式会社(以下、当社)は本製品が本文章で示す設計上の精度・性能を完全に満たすことを保証しません。また当社は、本製品がお客様のアプリケーションに実装された場合に正しく動作することを保証しません。組込み・実装する場合には、お客様の責任において十分な試験・検証を行ってください。本製品は人命や財産に重大な損害が予想される用途には使用できません。本製品を使用することで生じた損害（お客様または第三者いずれに生じた損害も含みます。）に関して当社は一切その責任を負いません。本文章の内容は予告なく変更される場合があります。東京デバイスならびに TD ロゴマークは東京デバイス株式会社の登録商標です。

## Table of Contents

IWS660-CS.....	1
1. Specifications .....	4
1. Connection .....	4
2. Control Commands .....	4
2.1. Reading Values .....	4
2.2. Device Enumeration .....	5
3. Product Customization Services .....	6

## 1. Specifications

<i>Item</i>	<i>Value</i>	<i>Unit</i>	<i>Description</i>
<b>Power Voltage</b>	5 ± 10%	V	Power supplied via USB bus.
<b>Current Consumption</b>	12	mA	Typ.
<b>Measurement Range Min</b>	10	lx	
<b>Measurement Range Max</b>	100,000	lx	
<b>Resolution (※)</b>	900	ticks	Logarithmic variation over 900 steps between 10 and 100,000 lx
<b>Spectrum Range</b>	475-650	nm	See figure 2
<b>Communication Standard</b>			USB 1.1 / HID Profile
<b>Supported OS</b>			Windows 7 and later (32/64-bit supported) Linux
<b>Dimensions</b>	70 x 50 x 17	mm	
<b>Weight</b>	30	g	
<b>Connector</b>			USB Type Mini-B
<b>Operating Temp. Range</b>	-10~50	°C	No condensation

## 1. Connection

Connect the USB connector on the side of the IWS660 to a USB port on the PC. Power will automatically turn on.

## 2. Control Commands

### For Windows:

Download the control command "TD-USB." Visit the Tokyo Devices website, search for the product using the keyword "IWS660," and download it from <https://en.tokyodevices.com/>

If an error occurs during command startup stating "vcruntime140.dll is missing," search for "Visual Studio 2015 Redistributable Package" online and download/install the required libraries from Microsoft's website.

### For Linux:

Obtain the source code from the GitHub repository at <https://github.com/tokyodevices/td-usb> and compile it. (Technical support for compilation on Linux is not provided.)

### 2.1. Reading Values

Legend:

```
> td-usb iws660[:serial number] read [--loop=(wait time)] [--format=json]
```

This command retrieves the latest values from the device. The terms "td-usb," "iws660," and "read" are fixed strings.

If multiple IWS660 devices are connected to the computer, you can specify a particular unit by adding a colon and the serial number after "iws660." If no serial number is specified, the first device detected by the computer will be targeted.

The `--loop` option allows for continuous measurement. The wait time defines the interval between measurements in milliseconds. The `--format=json` option outputs results in JSON format.

Example Execution:

```
> td-usb iws660 read --loop=500
100.2
100.2
100.2
118.4
118.4
...
```

In this example, values are read every 500 milliseconds from the first connected IWS660 device. The initial reading is 100.2 lux, and by the fourth measurement (after 2000 milliseconds), 118.4 lux is output.

You can use standard output redirection or piping with the TD-USB command to save the results to a file or use them as input for another process, providing versatile usage options.

## 2.2. Device Enumeration

Legend:

```
> td-usb iws660 list
```

This command outputs serial numbers of IWS660 device connected to the computer.

```
> td-usb iws660 list
1234567890,1843781739,3948479817
```

This example shows that three IWS660 devices are connected.

For other options available in the TD-USB command, please refer to the "Tokyo Devices TD-USB Command Developer Guide" for detailed usage instructions: <https://tokyodevices.github.io/td-usb-docs/>

### 3. Product Customization Services

Tokyo Devices offers customization of circuit board exteriors, functionalities, and performance based on customer needs. For more details, please check the "Customization" on the Tokyo Devices website.

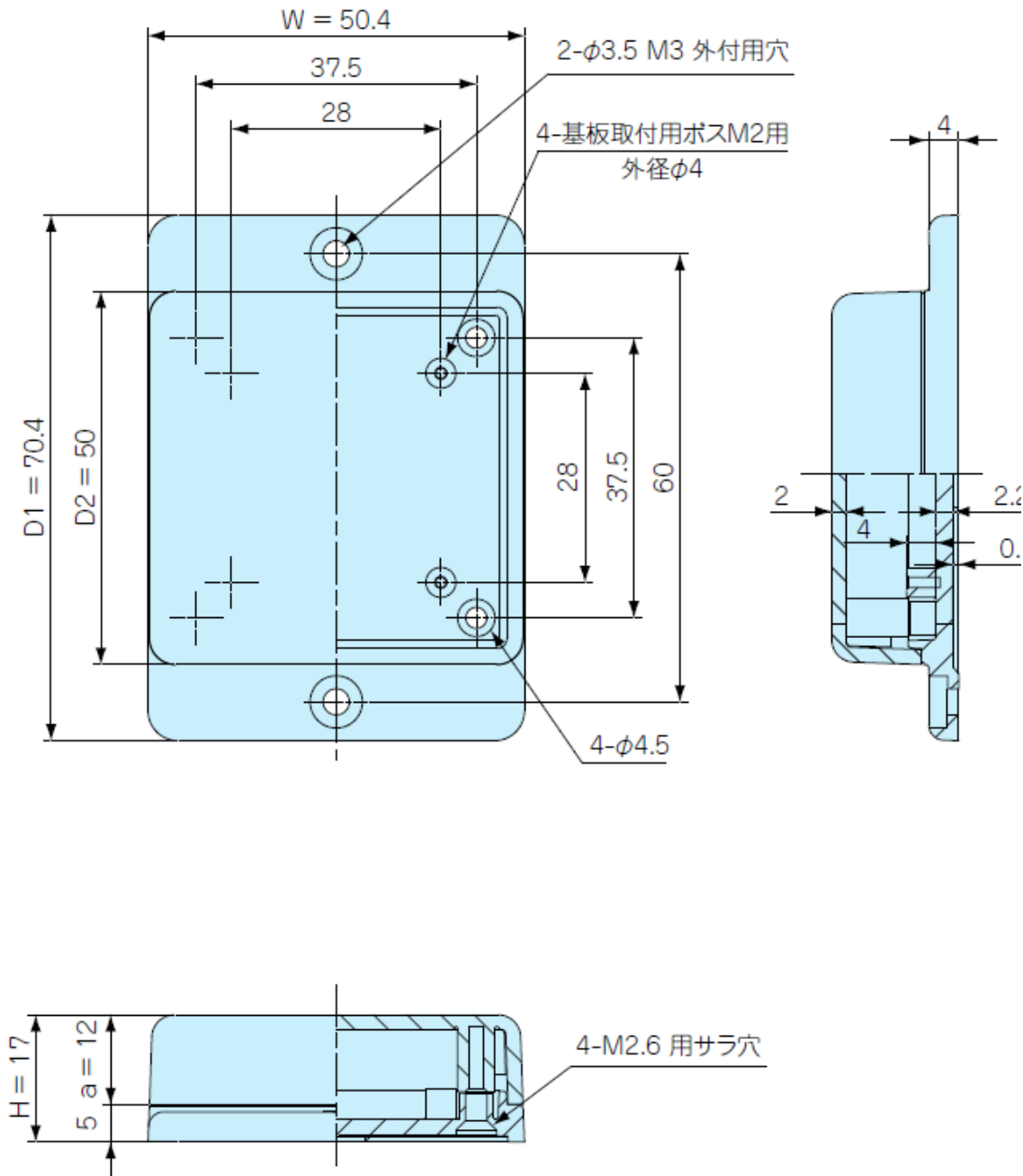
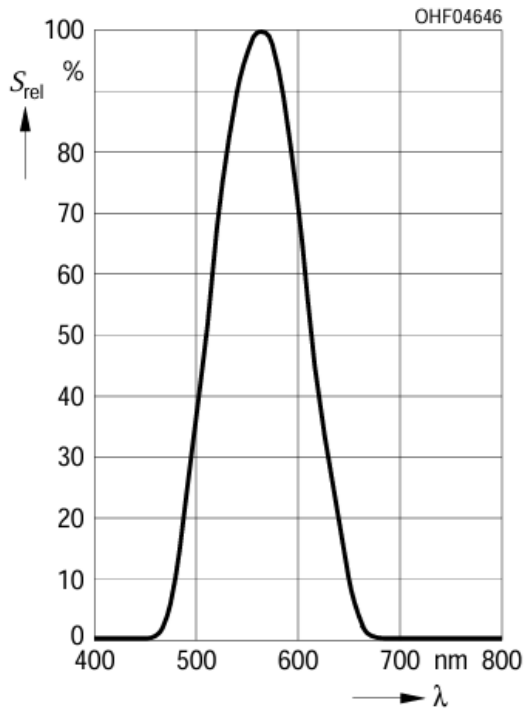


Figure 1 Dimensions

### Relative Spectral Sensitivity

Photodiode  $S_{rel} = f(\lambda)$



### Directional Characteristics

Photodiode  $S_{rel} = f(\phi)$

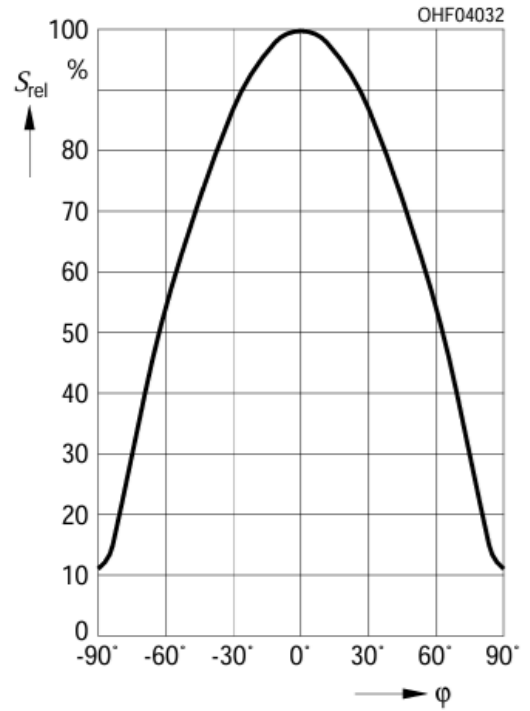


Figure 2 Spectral Sensitivity and Direction Characteristics

Tokyo Devices, Inc.  
Copyright © 2024 Tokyo Devices, Inc. All rights reserved.  
<https://en.tokyodevices.com/>