Wireless Hand Switches

- Operability that’s highly flexible and has a high degree of freedom has been realized. There is no need to worry about staining, disconnection, and entangling of cables.
- Comes with sub-buttons so that functions such as the sighting function, etc. can also be added.
- The main switch has a two-level output.
- An easy-to-grip design based on ergonomics
- The same design is also available in wired type.

RoHS Compliant

Be sure to read Safety Precautions on page 8.

Model Number Structure

<table>
<thead>
<tr>
<th>Type</th>
<th>Shape</th>
<th>Model</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wireless</td>
<td>Hand switch</td>
<td>C2UW-LP-I DA</td>
<td>Japan, America, Canada, Europe (EU), Korea, Australia, India, Brazil (as of August 2018)</td>
</tr>
<tr>
<td>Wireless</td>
<td>Holder</td>
<td>C2UW-LU DA</td>
<td></td>
</tr>
<tr>
<td>Wireless</td>
<td>Wire harness for wireless holder</td>
<td>C2UW-WH-1M</td>
<td></td>
</tr>
<tr>
<td>Wired</td>
<td>Hand switch</td>
<td>C2UW-DS DA</td>
<td></td>
</tr>
</tbody>
</table>

Note: A separate model has been prepared for medical equipment. Contact your OMRON representative for details.

System Configuration

The operation signal is sent from the hand switch. The holder receives the signal and sends it to the main body.

Wireless hand switch C2UW-LP-I DA + Wireless holder C2UW-LU DA + Customer’s equipment

Wire harness for wireless holder C2UW-WH-1M
## C2UW

### Mechanical Characteristics

<table>
<thead>
<tr>
<th>Item</th>
<th>C2UW-LP-I DA</th>
<th>C2UW-LU DA</th>
<th>C2UW-DS DA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard</strong></td>
<td>Bluetooth 4.0 Low Energy SIG certification acquired</td>
<td>Note: Countries that have acquired certification (as of August 2018)</td>
<td></td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>2.4 GHz zone (2.402 GHz to 2.480 GHz)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Communications range</strong></td>
<td>Approx. 10 m</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Response time</strong></td>
<td>When the switch is pressed: 70 msec (max.)</td>
<td>When the switch is released: 50 msec (max.)</td>
<td>Note: When the touch sensor is set to Enabled.</td>
</tr>
<tr>
<td><strong>No. of connections</strong></td>
<td>Max. 1</td>
<td>Max. 2</td>
<td>(Up to two units can be connected to one hand switch)</td>
</tr>
<tr>
<td><strong>Allowable operating frequency</strong></td>
<td>60 times/min. or less</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Shock</strong></td>
<td>Malfunction: 300 m/s² max.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vibration</strong></td>
<td>Destruction: Frequency 10 Hz to 55 Hz, Double amplitude 1.5 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Durability</strong></td>
<td>* Mechanical: Main switch 400,000 times or more (60 times/min.) ---</td>
<td>Sub-switch 400,000 times or more (60 times/min.) ---</td>
<td>400,000 times or more (60 times/min.)</td>
</tr>
<tr>
<td><strong>Cord tensile strength</strong></td>
<td>--- 100 N·1 min. 29.4 N·1 min.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating temperature range</strong></td>
<td>0°C to +40°C (no icing or condensation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Operating humidity range</strong></td>
<td>90% RH or less (at +5°C to 35°C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Approx. 70 g (no battery)</td>
<td>Approx. 120 g</td>
<td>Approx. 170 g (hand switch)</td>
</tr>
<tr>
<td><strong>Note:</strong></td>
<td>The above-described values are initial values.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The use of this product may result in generation of wave interference. Also, the surrounding environment may cause electromagnetic hindrance.*
### Ratings

**Wireless Hand Switch C2UW-LP-I DA**

<table>
<thead>
<tr>
<th>Ratings</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>3 V</td>
</tr>
<tr>
<td>Permissible voltage range</td>
<td>2.1 to 3 V</td>
</tr>
</tbody>
</table>

**Absolute maximum rating (Ta = 25°C)**

| Power supply voltage | -0.3 VDC or higher, 3.6 VDC or lower |

**Wireless Holder C2UW-LU DA**

<table>
<thead>
<tr>
<th>Ratings</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated voltage</td>
<td>12 to 24 V</td>
</tr>
<tr>
<td>Permissible voltage range</td>
<td>10.8 to 26.4 V DC</td>
</tr>
</tbody>
</table>

**Current consumption**

<table>
<thead>
<tr>
<th>Current consumption</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100 mA</td>
<td>400 mA</td>
</tr>
</tbody>
</table>

**Absolute maximum rating (Ta = 25°C)**

<table>
<thead>
<tr>
<th>Input terminal</th>
<th>Applied voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between VIN and GND</td>
<td>-0.3 VDC or higher, 3.6 VDC or lower</td>
</tr>
<tr>
<td>Continuous load current (average)</td>
<td></td>
</tr>
<tr>
<td>Between IN_COM and INREADY1</td>
<td>50 mA</td>
</tr>
<tr>
<td>Between IN_COM and INREADY2</td>
<td>50 mA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output terminal</th>
<th>Continuous load current (Peak AC/DC)</th>
<th>Load voltage (Peak AC/DC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between OUT_COM and OUTSLV_SW1</td>
<td>500 mA</td>
<td>60 V</td>
</tr>
<tr>
<td>Between OUT_COM and OUTSLV_SW2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Between OUT_COM and OUTSLV_SW3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Output circuit rating (Ta = 25°C)**

<table>
<thead>
<tr>
<th>Output terminal</th>
<th>Typ.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. output ON resistance</td>
<td>1 Ω</td>
<td>2 Ω</td>
</tr>
<tr>
<td>Leakage current for an open circuit</td>
<td>---</td>
<td>1 µA</td>
</tr>
</tbody>
</table>

**Battery:** Use a primary lithium battery manufactured by a regular manufacturer that is compatible with the CR17345/CR123A standard.

**Wired Hand Switch C2UW-DS DA**

<table>
<thead>
<tr>
<th>Ratings</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Main switch</td>
<td>14 V DC</td>
</tr>
<tr>
<td></td>
<td>10 mA</td>
</tr>
<tr>
<td>(Opening/closing frequency: 400,000 times)</td>
<td></td>
</tr>
<tr>
<td>Sub-switch</td>
<td>24 V DC</td>
</tr>
<tr>
<td></td>
<td>50 mA</td>
</tr>
<tr>
<td>(Opening/closing frequency: 400,000 times)</td>
<td></td>
</tr>
</tbody>
</table>

**Operation Characteristics (Initial Value Characteristics)**

**Common for Wireless Hand Switch C2UW-LP-I DA and Wired Hand Switch C2UW-DS DA**

<table>
<thead>
<tr>
<th>Item</th>
<th>Abbreviation</th>
<th>Unit</th>
<th>Standard value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main switch</td>
<td>Operating force 1</td>
<td>OF1</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>Operating force 2</td>
<td>OF2</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>Pretravel 1</td>
<td>PT1</td>
<td>mm</td>
</tr>
<tr>
<td></td>
<td>Pretravel 2</td>
<td>PT2</td>
<td>mm</td>
</tr>
<tr>
<td></td>
<td>Total travel</td>
<td>TT</td>
<td>mm</td>
</tr>
<tr>
<td>Sub-switch</td>
<td>Operating force</td>
<td>OF</td>
<td>N</td>
</tr>
<tr>
<td></td>
<td>Pretravel</td>
<td>PT</td>
<td>mm</td>
</tr>
</tbody>
</table>

* Reference value

**During central operation**
C2UW

Nomenclature (For the setting method and other details, refer to the user manual.)

Wireless Hand Switch C2UW-LP-I DA

Main switch SW1: First stage
SW2: Second stage
SW3: Sub-switch

Ring LED Green/Orange
Lights up when communications are disconnected.
Can be turned ON through signal input to the holder.

Hall IC (internal)

Touch sensor electrode (internal)
Properly hold the grip unit, and unless you touch two out of the four touch sensors, the signal will not be sent even upon operating the switch.
* The touch sensors can be switched between Enabled/Disabled.

Battery cover
Remove the cover and insert the battery.

RF antenna (internal)

Wireless Holder C2UW-LU DA

Display
Function switches 1 to 3 (inside the cover)
These switches are used to make various settings.

Cable: I/O interface

Wireless holder Description of display items

<table>
<thead>
<tr>
<th>LED1 (Green)</th>
<th>POWER ON</th>
</tr>
</thead>
<tbody>
<tr>
<td>This LED lights up when power is supplied to the wireless holder, and the internal circuit starts.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LED2 (Orange)</th>
<th>LOW BATTERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>This LED receives the battery status of the wireless hand switch through communications, and displays it. It flashes when the battery voltage of the wireless hand switch becomes 2.5 V or less. It lights up when the battery voltage of the wireless hand switch becomes 2.1 V or less. Immediately replace the battery.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LED3 (Green)</th>
<th>LINK</th>
</tr>
</thead>
<tbody>
<tr>
<td>This LED lights up when wireless communications are established. It turns off if the status of the wireless hand switch is in the following cases:</td>
<td></td>
</tr>
<tr>
<td>(1) When pairing has not been performed</td>
<td></td>
</tr>
<tr>
<td>(2) When power is not being supplied</td>
<td></td>
</tr>
<tr>
<td>(3) When the distance between the wireless hand switch and the wireless holder is large and wireless communications cannot be established</td>
<td></td>
</tr>
<tr>
<td>(4) When the sleep mode has been set (when the take-away prevention function has timed out, or the holder has been set)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LED4 (Green)</th>
<th>TOUCH SENSOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>This LED lights up when the touch sensor has been set to Enabled.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LED5 (Green)</th>
<th>BUZZER</th>
</tr>
</thead>
<tbody>
<tr>
<td>This LED lights up when the take-away prevention function has been set to Enabled.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LED6 (Green)</th>
<th>INPUT INDICATOR1</th>
</tr>
</thead>
<tbody>
<tr>
<td>This LED lights up when SW1 of the wireless hand switch is operated.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LED7 (Yellow)</th>
<th>INPUT INDICATOR2</th>
</tr>
</thead>
<tbody>
<tr>
<td>This LED lights up when SW2 of the wireless hand switch is operated.</td>
<td></td>
</tr>
</tbody>
</table>

Wired Hand Switch C2UW-DS DA


**Dimensions**

**Wireless Hand Switch C2UW-LP-I DA**

- Main switch (double action): 32.5 dia. 19 dia.
- Sub-switch (single action): 7 15.5 dia.
- Touch sensor electrode position: 7.6
- Hall IC position: 18.5
- LED green and yellow: 18.10
- Antenna: 26.6 24

**Wireless Holder C2UW-LU DA**

- Battery cover: 1 36.4
- Touch sensor electrode position: 2
- LED green and yellow: 30
- Antenna: 26.6 24A

**Wireless indication label**: 1 36.4

- Two-3.5 dia.: 22±0.2
- Two-7.5 dia.: 28.86
- Cable 6.1 dia.: 28.86
- Connector: 1 36.4
- Display: A
- R3 Display: 28.86
- Button, cover: 50
- R3: 49.20
- (30): 6.20
- R3: 38
- Two-3.5 dia.: 4 dia.
- Lot number: 1

- Connector: HR30-7J-12P(71) (HIROSE)
## Cable C2UW-WH-1M

<table>
<thead>
<tr>
<th>Terminal number</th>
<th>Code</th>
<th>Name</th>
<th>Wire color</th>
<th>Input/output</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OUT_COM</td>
<td>Output common</td>
<td>Black stamp on orange wire</td>
<td>Output</td>
<td>MOSFET relay (G3VM-61D1 manufactured by OMRON) output. Output common GND connection/sink output, or output common power supply connection/source output.</td>
</tr>
<tr>
<td>2</td>
<td>OUT_SLV_SW1</td>
<td>First-stage output</td>
<td>Red stamp on orange wire</td>
<td>Output</td>
<td>* In order to satisfy the current rating, connect a current limiting resistance if necessary, with reference to the MOSFET specifications.</td>
</tr>
<tr>
<td>3</td>
<td>OUT_SLV_SW2</td>
<td>Second-stage output</td>
<td>Black stamp on gray wire</td>
<td>Output</td>
<td>* In order to satisfy the current rating, connect a current limiting resistance if necessary, with reference to the MOSFET specifications.</td>
</tr>
<tr>
<td>4</td>
<td>OUT_SLV_SW3</td>
<td>Sub-switch output</td>
<td>Red stamp on gray wire</td>
<td>Output</td>
<td>The LEDs on the wireless hand switch light up. Diode full bridge (DA4X106U0R manufactured by Panasonic) circuit + photocoupler (TLP293 manufactured by TOSHIBA)</td>
</tr>
<tr>
<td>5</td>
<td>IN_COM</td>
<td>Input common</td>
<td>Black stamp on white wire</td>
<td>Input</td>
<td>0 VDC</td>
</tr>
<tr>
<td>6</td>
<td>IN_READY1</td>
<td>External input signal 1</td>
<td>Red stamp on white wire</td>
<td>Input</td>
<td>0 VDC</td>
</tr>
<tr>
<td>7</td>
<td>IN_READY2</td>
<td>External input signal 2</td>
<td>Black stamp on yellow wire</td>
<td>Input</td>
<td>0 VDC</td>
</tr>
<tr>
<td>8</td>
<td>GND</td>
<td>Power supply grounding</td>
<td>Red stamp on yellow wire</td>
<td>Input</td>
<td>0 VDC</td>
</tr>
<tr>
<td>9</td>
<td>VIN</td>
<td>Power supply input</td>
<td>Black stamp on pink wire</td>
<td>Input</td>
<td>10.8 to 26.4 V DC</td>
</tr>
</tbody>
</table>

### Wired Hand Switch C2UW-DS DA

![Diagram of the wired hand switch](image-url)

- **Main switch (double action)**
- **Sub-switch (single action)**
- **Vinyl tube**
- **R3**
- **R7**
- **Curled cord 4.6 dia.**
Connections

Holder Input/Output Section Circuit

1. Output: OUT_COM
   Common (Both + Common and - Common supported)
2. Output: OUT_SLV_SW1
   Slave main switch first-stage output
3. Output: OUT_SLV_SW2
   Slave main switch second-stage output
4. Output: OUT_SLV_SW3
   Slave sub-switch output

Use this input to turn ON the ring LED on the wireless hand switch.

5. Input: IN_COM input common
6. Input: IN_READY1
   example: Ready Up
7. Input: IN_READY2
   example: Irradiation state
8. Power supply input: GND 0V
9. Power supply input: VIN +10.8 to 26.4 VDC

Recommended Battery

CR123A (Lithium primary battery 3 VDC)
* You cannot use other than the battery specified above. Using an unspecified battery can result in failure or fire.

Opening/closing the battery cover
1. Rotate the end cap 90° in the counterclockwise direction.
2. Pull out the end cap.
3. Slide the battery cover in the direction of the end cap.
4. Lift up and remove the battery cover.
5. When closing the cover, follow the above procedure in the reverse order.
C2UW

Precautions for the Wireless Unit

Using the product in the following environment may result in a communications error. Be sure to check the wireless environment beforehand.

1. A wireless device using 2.4 GHz

2. Microwave oven or heat treatment equipment using micro waves

3. Obstacles between the hand switch and holder

Safety Precautions

Be sure to use the product properly while also referencing the “Common Precautions”.

<table>
<thead>
<tr>
<th>Precautions for Safe Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>Electrical rating</strong></td>
</tr>
<tr>
<td>• Use the product at the specified electrical rating. If the switch is used in excess of the electrical rating range, not only the durability of the switch may be shortened, but dangers such as generation of heat and burn-out may occur. Be sure to use the switch within the range of the rated voltage and rated current, including the instantaneous voltage and current during opening/closing.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Precautions for Correct Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>• <strong>Wiring</strong></td>
</tr>
<tr>
<td>• When performing soldering, be sure to quickly perform the process at 60 W within three seconds.</td>
</tr>
<tr>
<td>• <strong>Washing</strong></td>
</tr>
<tr>
<td>• Since this switch does not have a leak-proof structure, it cannot be washed. If you wash the switch, the soldering flux and impurities on the board may enter inside along with the washing liquid, causing damage to the switch.</td>
</tr>
<tr>
<td>• <strong>Usage and storage environment</strong></td>
</tr>
<tr>
<td>• Do not use or store the product at a location exposed to the corrosive gases such as hydrogen sulfide gas or the sea breeze, or a location exposed to oil or direct sunlight.</td>
</tr>
<tr>
<td>• Do not use or store the product at a location containing dust to an extent that can be visually seen. Doing so can result in a contact failure.</td>
</tr>
<tr>
<td>• If the product is stored under other than the specified storage environment conditions, or if dew formation occurs, or if the product falls, or if the product is stored for a long term exceeding one year, inspect at least the operating characteristics, contact resistance, insulation resistance, and withstand voltage.</td>
</tr>
</tbody>
</table>
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