

# Digital Timer H5CX-□-N

## Ultra-compact Timer Provides Advanced Functions and Security Settings.



### Basic Features

- Short body with depth of only 59 mm (for 24-VAC / 12 to 24-VDC Models with Screw Terminals). \*1
- Character height of 12 mm for better readability (on models with 4 digits).
- The present value display characters can be switched between red, green, and orange. \*2

### Safety and Reliability

- Power supply circuit and input circuits are isolated for safety and reliability. \*3
- New set value limit and output counter functions have been added. \*4

### Other Features

- Front Panel can be changed to white or light gray. \*5
- Models with instantaneous contact output added to the series.

- \*1. For 100 to 240 VAC Models with Screw Terminals 78 mm, Models with Sockets: 63.7 mm (case dimension).  
 \*2. The H5CX-A11, H5CX-L8 and H5CX-B Timers have only red characters.  
 \*3. Specifications: 100 to 240 VAC  
 \*4. The value of the output counter can only be monitored. It cannot be reset.  
 \*5. Replacement Front Panels sold separately.



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

Refer to "Safety Precautions" on page 41.

## Features

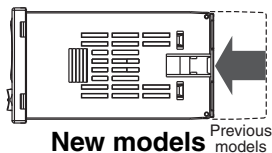
### Basic Features

#### Ultra Short Body

The body depth has been greatly reduced. Helps in making thinner control panels. (Models with Screw Terminals)

24-VAC / 12 to 24-VDC Models with Screw Terminals: 59 mm  
 100 to 240-VAC / VDC Models with Screw Terminals: 78 mm \*  
 Models with Sockets: 63.7 mm (case dimension)

\* The shortest body for a timer with isolated power supply and input circuits and a maximum ambient temperature of 55°C (according to OMRON investigation in June 2009).



### Easier to Read

For better readability, the character height for the present value display is 12 mm (on models with 4 digits), the largest class in the industry. The wide viewing angle and brightness provide excellent visibility. The number of display segments has also been increased to make settings easier to understand, and the present value display can be switched between red, green and orange so that output status can be seen from a distance.

Model with 4 Digits    Model with 6 Digits

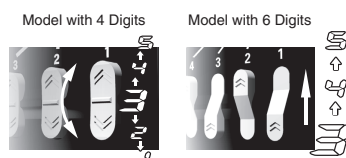


(Display example)

**Note:** The H5CX-A11 and H5CX-L8 Timers have only red characters.

### The Easiest Operation

Operation is simplified by the Up/Down Keys for each digit on 4-digit models and Up Keys for each digit on 6-digit models.

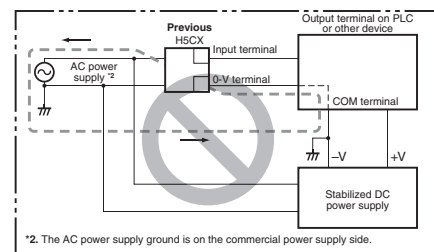


### Safety and Reliability

#### Isolated Power Supply and Input Circuits \*1

Power supply circuit and input circuits are isolated for safety and reliability.

Previous non-isolated timers had wiring restrictions and could be damaged if wired incorrectly. The New H5CX removes these worries.



\*2. The AC power supply ground is on the commercial power supply side.

Forget These Worries with the New H5CX

\*1. New Models (H5CX-□-N) with 100 to 240-VAC specifications.

#### Set Value Limit

You can set an upper limit for the set value to prevent unexpected operation of output devices caused by setting mistakes.



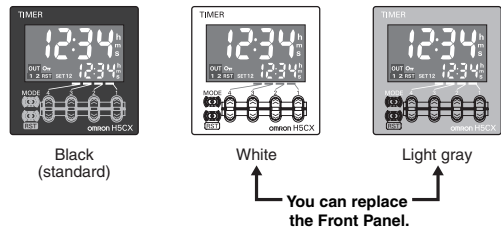
#### Output Counter

An output counter counts the number of times that the output turns ON. (An alarm can be set and the value of the output counter can be monitored, Unit: 1,000 operations.) This counter is useful in managing the service life of the Timer or the load.

Other Features

Change the Front Panel Color

The Front Panel can be replaced with an optional Front Panel (order separately) with a different color to match the installation site. Select from black, white, and light gray.



Models with Instantaneous Contact Output

Models with instantaneous contact outputs have been added to the lineup for use with self-holding circuits and as auxiliary relays. These models are also convenient when replacing analog timers.

Universal NPN/PNP Input

DC 2-wire sensors can be connected for a wide range of input devices.

Waterproof, Dust-proof Structure (UL508 Type 4X and IP66)

Worry-free application is possible in locations subject to water.  
**Note:** When the Y92S-29 Waterproof Packing is used.

Key Protection

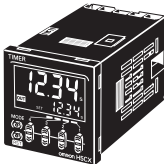
Select from any of seven protection patterns. Use the best one for the application.

New Modes

Modes, such as a stopwatch mode (Mode S), have been added.  
Select any of 15 modes.

Model Number Structure

Model Configuration

| H5CX Series                              |                                        |                                                                                     |               |                                                                                     |                                                         |                                                                                       |
|------------------------------------------|----------------------------------------|-------------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------------------------------------|
| Type                                     |                                        | Standard Type<br>H5CX-A Series                                                      |               | Economy Type<br>H5CX-L Series                                                       |                                                         | Six-digit Type                                                                        |
|                                          |                                        |  |               |  |                                                         |  |
| Model                                    |                                        | H5CX-A□-N                                                                           | H5CX-A11□-N   | H5CX-L8□-N                                                                          | H5CX-L8E□-N                                             | H5CX-BWSD-N                                                                           |
| Function                                 | Timer                                  | Yes                                                                                 |               | Yes                                                                                 |                                                         | No                                                                                    |
|                                          | Twin timer                             | Yes                                                                                 |               | Yes                                                                                 |                                                         | No                                                                                    |
|                                          | Two-stage settings/<br>forecast output | No                                                                                  |               | No                                                                                  |                                                         | Yes                                                                                   |
| Operating modes                          |                                        | Timer Mode: 11 modes<br>Twin Timer Mode: 4 modes                                    |               |                                                                                     | Timer Mode<br>: 4 modes<br>Twin Timer Mode<br>: 2 modes | Timer Mode: 2 modes                                                                   |
| Input                                    |                                        | NPN/PNP input                                                                       |               | NPN input                                                                           | None                                                    | NPN/PNP input                                                                         |
| External connections                     |                                        | Screw terminal<br>block                                                             | 11-pin socket | 8-pin socket                                                                        |                                                         | Screw terminal block                                                                  |
| Present value display<br>character color |                                        | Red, green, or<br>orange                                                            | Red           |                                                                                     |                                                         |                                                                                       |
| Number of display digits                 |                                        | 4                                                                                   |               |                                                                                     |                                                         | 6                                                                                     |
| Instantaneous contacts                   |                                        | None                                                                                |               |                                                                                     | Provided                                                | None                                                                                  |
| Gate input                               |                                        | Supported                                                                           |               | Not supported                                                                       |                                                         | Supported                                                                             |
| DIP switch settings                      |                                        | Provided                                                                            |               | None                                                                                |                                                         | Provided                                                                              |
| Power supply voltage                     |                                        | 100 to 240 VAC or 24 VAC/12 to 24 VDC                                               |               |                                                                                     |                                                         | 12 to 24 VDC                                                                          |

## Model Number Legend (Not all possible combinations of functions are available.)

**H5CX-□□□□□-N**

1 2 3 4 5

### 1. Type Classifier

| Symbol | Meaning       |
|--------|---------------|
| A      | Standard type |
| B      | 6-digit type  |
| L      | Economy type  |

### 4. Output type

| Symbol | Meaning                                                 |
|--------|---------------------------------------------------------|
| None   | Contact output (time-limit SPDT)                        |
| E      | Contact output (time-limit SPDT + instantaneous SPDT) * |
| S      | Transistor output                                       |

\* Can be used as a time-limit DPDT output.

### 2. External Connections

| Symbol | Meaning         |
|--------|-----------------|
| None   | Screw terminals |
| 8      | 8-pin socket    |
| 11     | 11-pin socket   |

### 5. Supply voltage

| Symbol | Meaning                        |
|--------|--------------------------------|
| None   | 100 to 240 VAC 50/60 Hz        |
| D      | 12 to 24 VDC/24 VAC 50/60 Hz * |

\* The H5CX-BWSD-N is available only for 12 to 24 VDC.

### 3. Settings

| Symbol | Meaning    |
|--------|------------|
| None   | One stage  |
| W      | Two stages |

**Note:** Estimates can be provided for coatings and other specifications that are not given in the datasheet. Ask your OMRON representative for details.

## Ordering Information

### List of Models

| Type                                                                                                         | Time specifications                                                                    | Operating modes                                                                                                                                                                                                                                                          | External connections | Inputs                                | Outputs                          | Supply voltage                                                                                                   | Models                                                                                                                              |              |                            |                                  |                                        |                           |
|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------|----------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|--------------|----------------------------|----------------------------------|----------------------------------------|---------------------------|
| H5CX-A                                                                                                       | 0.001 to 9.999 s<br>0.01 to 99.99 s<br>0.1 to 999.9 s<br>1 to 9999 s                   | Timer Mode<br>A: Signal ON Delay I<br>A-1: Signal ON Delay II<br>A-2: Power ON Delay I<br>A-3: Power ON Delay II<br>b: Repeat cycle 1<br>b-1: Repeat cycle 2<br>d: Signal OFF Delay<br>E: Interval<br>F: Cumulative<br>Z: ON/OFF-duty-adjustable flicker<br>S: Stopwatch | Screw terminals      | Signal, Reset, Gate (NPN/ PNP inputs) | Contact output (time-limit SPDT) | 100 to 240 VAC<br>12 to 24 VDC/ 24 VAC                                                                           | H5CX-A-N<br>H5CX-AD-N                                                                                                               |              |                            |                                  |                                        |                           |
|                                                                                                              |                                                                                        |                                                                                                                                                                                                                                                                          |                      |                                       | Transistor output (SPST)         | 100 to 240 VAC<br>12 to 24 VDC/ 24 VAC                                                                           | H5CX-AS-N<br>H5CX-ASD-N                                                                                                             |              |                            |                                  |                                        |                           |
|                                                                                                              |                                                                                        |                                                                                                                                                                                                                                                                          | 11-pin socket        |                                       | Contact output (time-limit SPDT) | 100 to 240 VAC<br>12 to 24 VDC/ 24 VAC                                                                           | H5CX-A11-N<br>H5CX-A11D-N                                                                                                           |              |                            |                                  |                                        |                           |
|                                                                                                              |                                                                                        |                                                                                                                                                                                                                                                                          |                      |                                       | Transistor output (SPST)         | 100 to 240 VAC<br>12 to 24 VDC/ 24 VAC                                                                           | H5CX-A11S-N<br>H5CX-A11SD-N                                                                                                         |              |                            |                                  |                                        |                           |
|                                                                                                              |                                                                                        |                                                                                                                                                                                                                                                                          |                      |                                       | H5CX-L                           | 1 s to 99 min 59 s<br>0.1 to 999.9 min<br>1 to 9999 min<br>1 min to 99 h 59 min<br>0.1 to 999.9 h<br>1 to 9999 h | Twin Timer Mode<br>toff: Flicker OFF Start 1<br>ton: Flicker ON Start 1<br>toff-1: Flicker OFF Start 2<br>ton-1: Flicker ON Start 2 | 8-pin socket | Signal, Reset (NPN inputs) | Contact output (time-limit SPDT) | 100 to 240 VAC<br>12 to 24 VDC/ 24 VAC | H5CX-L8-N<br>H5CX-L8D-N   |
|                                                                                                              |                                                                                        |                                                                                                                                                                                                                                                                          |                      |                                       |                                  |                                                                                                                  |                                                                                                                                     |              |                            | Transistor output (SPST)         | 100 to 240 VAC<br>12 to 24 VDC/ 24 VAC | H5CX-L8S-N<br>H5CX-L8SD-N |
| Timer Mode<br>A-2: Power ON Delay I<br>b: Repeat cycle 1<br>E: Interval<br>Z: ON/OFF-duty-adjustable flicker | None                                                                                   | Contact output (time-limit SPDT + instantaneous SPDT)                                                                                                                                                                                                                    | 100 to 240 VAC       | H5CX-L8E-N                            |                                  |                                                                                                                  |                                                                                                                                     |              |                            |                                  |                                        |                           |
|                                                                                                              |                                                                                        | Models with instantaneous contact outputs                                                                                                                                                                                                                                | 12 to 24 VDC/ 24 VAC | H5CX-L8ED-N                           |                                  |                                                                                                                  |                                                                                                                                     |              |                            |                                  |                                        |                           |
| H5CX-B                                                                                                       | 0.01 to 9999.99 s<br>1 s to 99 h 59 min 59 s<br>0.1 to 99999.9 min<br>0.1 to 99999.9 h | A: Signal ON Delay I<br>F-1: Cumulative                                                                                                                                                                                                                                  | Screw terminals      | Signal, Reset, Gate (NPN/ PNP inputs) | Transistor output (DPST)         | 12 to 24 VDC                                                                                                     | H5CX-BWSD-N                                                                                                                         |              |                            |                                  |                                        |                           |

**Note:** 1. The functions that are provided depend on the model. Check detailed specifications before ordering.

2. Refer to **page 33** and later for information on H5CX-B Timers (6-digit display).

## Accessories (Order Separately)

### Front Panels (Replacement Parts)

| Models     | Color               | Applicable Timers | Page |
|------------|---------------------|-------------------|------|
| Y92P-CXT4G | Light gray (5Y7/1)  | Four-digit models | 12   |
| Y92P-CXT4S | White (5Y9.2 / 0.5) |                   |      |
| Y92P-CXT4B | Black (N1.5)        |                   |      |

**Note:** 1. You can change the color of the front panel when mounting the Timer. The Timer is shipped with a black (N1.5) Front Panel.  
2. "TIMER" is printed on the front of Replacement Front Panels.

### Soft Cover

| Models    | Remarks | Page |
|-----------|---------|------|
| Y92A-48F1 | ---     | 12   |

### Hard Cover

| Models  | Remarks | Page |
|---------|---------|------|
| Y92A-48 | ---     | 12   |

### Flush Mounting Adapter

| Models  | Remarks                                                                                                                   | Page |
|---------|---------------------------------------------------------------------------------------------------------------------------|------|
| Y92F-30 | Included with models with terminal blocks.                                                                                | 12   |
| Y92F-45 | Use this Adapter to install the Timer in a cutout previously made for a DIN 72 x 72 mm device (panel cutout: 68 x 68 mm). |      |
| Y92F-38 | Use for replacement of the 81-dia. hole device (H3AM).                                                                    |      |

### Waterproof Packing

| Models  | Remarks                                    | Page |
|---------|--------------------------------------------|------|
| Y92S-29 | Included with models with terminal blocks. | 12   |

### Connection Sockets

| Models    | Type                                       | Connectable Timers | Remarks                                                                                     | Page |
|-----------|--------------------------------------------|--------------------|---------------------------------------------------------------------------------------------|------|
| P2CF-08   | Front Connecting Socket                    | H5CX-L8□           | Round crimp terminals cannot be used on Finger-safe Sockets. Use forked crimp terminals.    | 13   |
| P2CF-08-E | Front Connecting Socket (Finger-safe Type) |                    |                                                                                             |      |
| P2CF-11   | Front Connecting Socket                    | H5CX-A11□          | Round crimp terminals cannot be used on Finger-safe Sockets. Use forked crimp terminals.    |      |
| P2CF-11-E | Front Connecting Socket (Finger-safe Type) |                    |                                                                                             |      |
| P3G-08    | Back Connecting Socket                     | H5CX-L8□           | A Y92A-48G Terminal Cover can be used with the Socket to create a finger-safe construction. |      |
| P3GA-11   |                                            | H5CX-A11□          |                                                                                             |      |

### Terminal Covers for P3G-08 and P3GA-11 Back-connecting Sockets

| Models   | Remarks | Page |
|----------|---------|------|
| Y92A-48G | ---     | 14   |

## H5CX-A□-N/-L□-N Digital Timers

- Switch the display color\* between red, green, and orange to see the output status from a distance.
- Up/Down Keys for each digit enable easy operation.
- Cyclic control is easy with the Twin Timer and Variable ON/OFF Duty modes.

\* Not supported by the H5CX-A11□-N or H5CX-L8□-N.



For the most recent information on models that have been certified for safety standards, refer to your OMRON website.

## Specifications

### Ratings

| Item                        |                                     | Models                                                                                                                                                                                                                                                                                                                                             | H5CX-A□-N                                                                                                                                                                                    | H5CX-A11□-N                                                                                                                  | H5CX-L8□-N                                                                                                                                                                                |
|-----------------------------|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Classification              |                                     |                                                                                                                                                                                                                                                                                                                                                    | Standard Type                                                                                                                                                                                |                                                                                                                              | Economy Type                                                                                                                                                                              |
| Ratings                     | Power supply voltage *1             | • 100 to 240 VAC 50/60 Hz<br>• 12 to 24 VDC/24 VAC 50/60 Hz                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                              |                                                                                                                              |                                                                                                                                                                                           |
|                             | Operating voltage fluctuation range | 85% to 110% of rated supply voltage (90% to 110% at 12 to 24 VDC)                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                              |                                                                                                                              |                                                                                                                                                                                           |
|                             | Power consumption                   | Approx. 6.2 VA at 100 to 240 VAC, Approx. 5.1 VA/2.4 W at 24 VAC/12 to 24 VDC *2                                                                                                                                                                                                                                                                   |                                                                                                                                                                                              |                                                                                                                              |                                                                                                                                                                                           |
| Mounting method             |                                     |                                                                                                                                                                                                                                                                                                                                                    | Flush mounting                                                                                                                                                                               | Flush mounting, surface mounting, DIN track mounting                                                                         |                                                                                                                                                                                           |
| External connections        |                                     |                                                                                                                                                                                                                                                                                                                                                    | Screw terminals                                                                                                                                                                              | 11-pin socket                                                                                                                | 8-pin socket                                                                                                                                                                              |
| Degree of protection        |                                     |                                                                                                                                                                                                                                                                                                                                                    | IEC IP66, UL508 Type 4X (indoors) for panel surface only and when Y92S-29 Waterproof Packing is used                                                                                         |                                                                                                                              |                                                                                                                                                                                           |
| Digits                      |                                     |                                                                                                                                                                                                                                                                                                                                                    | 4 digits                                                                                                                                                                                     |                                                                                                                              |                                                                                                                                                                                           |
| Time ranges                 |                                     |                                                                                                                                                                                                                                                                                                                                                    | 0.001 s to 9.999 s, 0.01 s to 99.99 s, 0.1 s to 999.9 s, 1 s to 9999 s, 1 s to 99 min 59 s<br>0.1 min to 999.9 min, 1 min to 9999 min, 1 min to 99 h 59 min, 0.1 h to 999.9 h, 1 h to 9999 h |                                                                                                                              |                                                                                                                                                                                           |
| Timer mode                  |                                     |                                                                                                                                                                                                                                                                                                                                                    | Elapsed time (Up), remaining time (Down) (selectable)                                                                                                                                        |                                                                                                                              |                                                                                                                                                                                           |
| Inputs                      | Input signals                       | Signal, Reset, Gate                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                              |                                                                                                                              | Signal, Reset<br>(no inputs on models with instantaneous contact outputs)                                                                                                                 |
|                             | Input method                        | No-voltage (NPN) input/voltage (PNP) input (switchable)<br>No-voltage Input ON impedance: 1 kΩ max. (Leakage current: 12 mA when 0 Ω)<br>ON residual voltage: 3 V max.<br>OFF impedance: 100 kΩ min.<br>Voltage Input High (logic) level: 4.5 to 30 VDC<br>Low (logic) level: 0 to 2 VDC (Input resistance: approx. 4.7 kΩ)                        |                                                                                                                                                                                              |                                                                                                                              | No-voltage Input ON impedance: 1 kΩ max.<br>(Leakage current: 12 mA when 0 Ω)<br>ON residual voltage: 3 V max.<br>OFF impedance: 100 kΩ min.                                              |
|                             |                                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                              |                                                                                                                              |                                                                                                                                                                                           |
|                             |                                     |                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                              |                                                                                                                              |                                                                                                                                                                                           |
| Signal, reset, gate         |                                     |                                                                                                                                                                                                                                                                                                                                                    | Minimum input signal width: 1 or 20 ms (selectable, same for all input)                                                                                                                      |                                                                                                                              |                                                                                                                                                                                           |
| Reset system                |                                     |                                                                                                                                                                                                                                                                                                                                                    | Power reset (depending on output mode), external reset, manual reset, automatic reset (depending on output mode)                                                                             |                                                                                                                              |                                                                                                                                                                                           |
| Power reset                 |                                     |                                                                                                                                                                                                                                                                                                                                                    | Minimum power-opening time: 0.5 s (except for A-3, b-1, F, ton-1, and toff-1 mode)                                                                                                           |                                                                                                                              |                                                                                                                                                                                           |
| Reset voltage               |                                     |                                                                                                                                                                                                                                                                                                                                                    | 10% max. of rated supply voltage                                                                                                                                                             |                                                                                                                              |                                                                                                                                                                                           |
| Sensor waiting time         |                                     |                                                                                                                                                                                                                                                                                                                                                    | 250 ms max. (Control output is turned OFF and no input is accepted during sensor waiting time.)                                                                                              |                                                                                                                              |                                                                                                                                                                                           |
| Output                      | Output modes                        | A: Signal ON Delay I, A-1: Signal ON Delay II, A-2: Power ON Delay I, A-3: Power ON Delay II, b: Repeat Cycle 1, b-1: Repeat Cycle 2, d: Signal OFF Delay, E: Interval, F: Cumulative, Z: ON/OFF-duty-adjustable flicker, S: Stopwatch, toff: Flicker OFF Start 1, ton: Flicker ON Start 1, toff-1: Flicker OFF Start 2, ton-1: Flicker ON Start 2 |                                                                                                                                                                                              |                                                                                                                              | Models with Instantaneous Contact Outputs<br>A-2: Power ON Delay I, b: Repeat Cycle 1, E: Interval, Z: ON/OFF-duty-adjustable flicker, toff: Flicker OFF Start 1, ton: Flicker ON Start 1 |
|                             | One-shot output time                | 0.01 to 99.99 s                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                              |                                                                                                                              |                                                                                                                                                                                           |
|                             | Control output                      | • Models with Contact Outputs<br>5 A at 250 VAC/30 VDC, resistive load (cos =1)<br>Minimum applied load: 10 mA at 5 VDC (failure level: P, reference value)<br>Contact materials : AgSnIn<br>• Transistor output: NPN open collector,<br>100 mA at 30 VDC max., residual voltage: 1.5 VDC max. (Approx. 1 V), Leakage current: 0.1 mA max.         |                                                                                                                                                                                              |                                                                                                                              |                                                                                                                                                                                           |
| Display method *3           |                                     |                                                                                                                                                                                                                                                                                                                                                    | 7-segment, negative transmissive LCD;<br>Present value: 12-mm-high characters, (switchable between red, green, and orange)<br>Set value: 6-mm-high characters, green                         | 7-segment, negative transmissive LCD;<br>Present value: 12-mm-high characters, red<br>Set value: 6-mm-high characters, green |                                                                                                                                                                                           |
| Memory backup               |                                     |                                                                                                                                                                                                                                                                                                                                                    | EEPROM (overwrites: 100,000 times min.) that can store data for 10 years min.                                                                                                                |                                                                                                                              |                                                                                                                                                                                           |
| Operating temperature range |                                     |                                                                                                                                                                                                                                                                                                                                                    | -10 to 55°C (-10 to 50°C if counters are mounted side by side) (with no icing or condensation)                                                                                               |                                                                                                                              |                                                                                                                                                                                           |
| Storage temperature range   |                                     |                                                                                                                                                                                                                                                                                                                                                    | -25 to 70°C (with no icing or condensation)                                                                                                                                                  |                                                                                                                              |                                                                                                                                                                                           |
| Operating humidity range    |                                     |                                                                                                                                                                                                                                                                                                                                                    | 25% to 85%                                                                                                                                                                                   |                                                                                                                              |                                                                                                                                                                                           |
| Case color                  |                                     |                                                                                                                                                                                                                                                                                                                                                    | Black (N1.5) (Optional Front Panels are available to change the Front Panel color to light gray or white.)                                                                                   |                                                                                                                              |                                                                                                                                                                                           |
| Attachments                 |                                     |                                                                                                                                                                                                                                                                                                                                                    | Waterproof packing, flush mounting adapter, label for DIP switch settings                                                                                                                    | Label for DIP switch settings                                                                                                | ---                                                                                                                                                                                       |

\*1. Do not use the output from an inverter as the power supply. The ripple must be 20% maximum for DC power.

\*2. Inrush current will flow for a short time when the power supply is turned ON.

Inrush Current (Reference Values)

| Voltage             | Applied voltage | Inrush current (peak value) | Time   |
|---------------------|-----------------|-----------------------------|--------|
| 100 to 240 VAC      | 264 VAC         | 5.3 A                       | 0.4 ms |
|                     | 26.4 VAC        | 6.4 A                       | 1.4 ms |
| 12 to 24 VDC/24 VAC | 26.4 VDC        | 4.4 A                       | 1.7 ms |

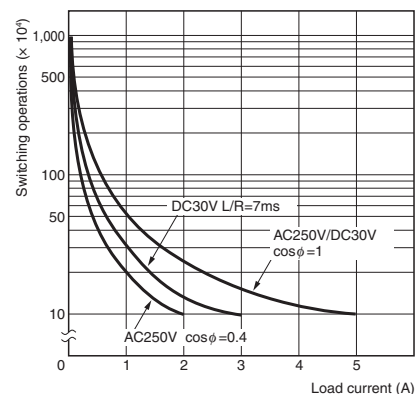
\*3. The display is lit only when the power is ON. Nothing is displayed when power is OFF.

## Characteristics

|                                                                                                    |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Accuracy of operating time and setting error (including temperature and voltage influences)</b> |                    | Power-ON start: $\pm 0.01\%$ $\pm 50$ ms max. (See note 1.)<br>Signal start: $\pm 0.005\%$ $\pm 30$ ms max. (See note 1.)<br>Signal start for transistor output model: $\pm 0.005\%$ $\pm 3$ ms max. (See note 1 and 2.)<br>If the set value is within the sensor waiting time at startup the control output of the H5CX will not turn ON until the sensor waiting time passes.<br><b>Note:</b> 1. The values are based on the set value.<br>2. The value is applied for a minimum pulse width of 1 ms.                                                                                                   |
| <b>Insulation resistance</b>                                                                       |                    | 100 M $\Omega$ min. (at 500 VDC) between current-carrying terminal and exposed non-current-carrying metal parts, and between non-continuous contacts                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Dielectric strength</b>                                                                         |                    | 2,000 VAC, 50/60 Hz for 1 min between current-carrying metal parts and non-current-carrying metal parts<br>2,000 VAC, 50/60 Hz for 1 min between power supply and input circuits for the models other than H5CX-□D-N and H5CX-L8E□-N<br>1,000 VAC, 50/60 Hz for 1 min between control output, power supply, and input circuits (for the models other than H5CX-L8E□-N) for H5CX-□SD-N<br>2,000 VAC, 50/60 Hz for 1 min between control output, power supply, and input circuits (for the models other than H5CX-L8E□-N) for other models<br>1,000 VAC, 50/60 Hz for 1 min between non-continuous contacts |
| <b>Impulse withstand voltage</b>                                                                   |                    | 5 kV (between power terminals) for 100 to 240 VAC, 1 kV for 24 VAC/12 to 24 VDC<br>5 kV (between current-carrying terminal and exposed non-current-carrying metal parts) for 100 to 240 VAC 1.5 kV for 24 VAC/12 to 24 VDC                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Noise immunity</b>                                                                              |                    | $\pm 1.5$ kV (between power terminals) and $\pm 600$ V (between input terminals), square-wave noise by noise simulator (pulse width: 100 ns/1 $\mu$ s, 1-ns rise)                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Static immunity</b>                                                                             |                    | Malfunction: 8 kV<br>Destruction: 15 kV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Vibration resistance</b>                                                                        | <b>Destruction</b> | 10 to 55 Hz with 0.75-mm single amplitude each in three directions for 2 h each                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                                                                                    | <b>Malfunction</b> | 10 to 55 Hz with 0.35-mm single amplitude each in three directions for 10 min each                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Shock resistance</b>                                                                            | <b>Destruction</b> | 300 m/s <sup>2</sup> in three directions, three cycles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                                                                                    | <b>Malfunction</b> | 100 m/s <sup>2</sup> in three directions, three cycles                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Life expectancy</b>                                                                             | <b>Mechanical</b>  | 10,000,000 operations min. (under no load at 1,800 operations/h and ambient temperature of 23°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                                                                                    | <b>Electrical</b>  | 100,000 operations min. (5 A at 250 VAC, resistive load at 1,800 operations/h and ambient temperature of 23°C) *                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Weight</b>                                                                                      |                    | Approx. 115 g (Timer only)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

\* Refer to Life-test Curve.

## Life-test Curve (Reference Values)



A maximum current of 0.15 A can be switched at 125 VDC (cosφ =1) and a maximum current of 0.1 A can be switched if L/R is 7 ms. In both cases, a life of 100,000 operations can be expected.

## Applicable Standards

|                           |                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Approved safety standards | UL508/Listing, UL508 Type 4X for indoor use (enclosure rating), CSA C22.2 No. 14 <sup>*1</sup> , conforms to EN61812-1 (Pollution degree 2/overvoltage category III)<br>B300 PILOT DUTY<br>1/4 HP 120 VAC, 1/3 HP, 240 VAC, 5 A resistive load<br>VDE0106/P100<br>CCC: GB/T 14048.5 Pollution degree 2, Overvoltage category III <sup>*2,*3</sup>      |
| EMC                       | (EMI)<br>Emission Enclosure: EN61812-1<br>Emission AC mains: EN55011 Group 1 class A<br>(EMS)<br>Immunity ESD: EN61812-1<br>Immunity RF-interference: IEC61000-4-2<br>Immunity Burst: IEC61000-4-3<br>Immunity Surge: IEC61000-4-4<br>Immunity Conducted Disturbance: IEC61000-4-5<br>Immunity Voltage Dip/Interruption: IEC61000-4-6<br>IEC61000-4-11 |

<sup>\*1</sup>. The following safety standards apply to models with sockets (H5CX-A11□ or H5CX-L8□).

cUL (Listing): Applicable when an OMRON P2CF (-E) Socket is used.

cUR (Recognition): Applicable when any other socket is used.

<sup>\*2</sup>. Excluding the H5CX-ASD-N/-A11SD-N/-L8SD-N.

<sup>\*3</sup>. CCC certification requirements

|                                                                                  |                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rated operating voltage U <sub>e</sub><br>Rated operating current I <sub>e</sub> | Contact Output:<br>AC-15: U <sub>e</sub> : 250 VAC, I <sub>e</sub> : 3 A<br>AC-13: U <sub>e</sub> : 250 VAC, I <sub>e</sub> : 5 A<br>DC-13: U <sub>e</sub> : 30 VDC, I <sub>e</sub> : 0.5 A<br>Transistor Output:<br>DC-13: U <sub>e</sub> : 30 VDC, I <sub>e</sub> : 0.1 A |
| Rated insulation voltage                                                         | 250 V                                                                                                                                                                                                                                                                       |
| Rated impulse withstand voltage<br>(altitude: 2,000 m max.)                      | 4 kV (at 240 VAC)                                                                                                                                                                                                                                                           |
| Conditional short-circuit current                                                | 1000 A                                                                                                                                                                                                                                                                      |

## I/O Functions

For details, refer to the timing charts on **page 20** and **page 29**.

|                      |                      |                                                                                                                                                                                                                                                                                                                                                           |
|----------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inputs <sup>*1</sup> | Start signal         | Normally functions to start timing.<br>In modes A-2 and A-3, disable timing. In mode S, starts and stops timing.                                                                                                                                                                                                                                          |
|                      | Reset                | <ul style="list-style-type: none"> <li>Resets present value. (In elapsed time mode, the present value returns to 0; in remaining time mode, the present value returns to the set value.)</li> <li>Count inputs are not accepted and control output turns OFF while reset input is ON.</li> <li>Reset indicator is lit while reset input is ON.</li> </ul> |
|                      | Gate <sup>*2</sup>   | Disables timing. (If a reset occurs while the gate input is ON, a reset will be performed.)                                                                                                                                                                                                                                                               |
| Outputs              | Control output (OUT) | Outputs take place according to designated operating mode when timer reaches corresponding set value.                                                                                                                                                                                                                                                     |

<sup>\*1</sup>. The H5CX-L8E□ does not have an input.

<sup>\*2</sup>. The H5CX-L□ does not have a gate input.

## Response Delay Time When Resetting (Transistor Output)

The following table shows the delay from when the reset signal is input until the output is turned OFF.

(Reference value)

| Minimum reset signal width | Output delay time |
|----------------------------|-------------------|
| 1 ms                       | 0.8 to 1.2 ms     |
| 20 ms                      | 15 to 25 ms       |