

PLC

HMI

SENSOR

ENCODER

COUNTER

INFORMATION

# KCX-□W/WM

## Features

### Green Counter Increment Type, Double Preset

- Maximum counting speed  
For 3 and 4 digits: for both 10 Hz and 2 kHz  
For 5 and 6 digits: for both 10 Hz and 5 kHz
- The 3 to 6-digit double preset electronic counter uses an easy-to-see, bright green color for the numerical display.  
The electronic counter consolidates various functions in its compact body, including thorough dust prevention measures and power failure measures.



## Features

### Easy-to-see Green Display

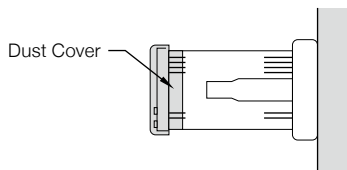
The numerical display is an easy-to-see green display. (Green LED with 8 mm high characters)

### Miniature (All Models: DIN Size 72 x 72 mm)

All 3-digit to 6-digit models are compact with the front outer shape being DIN size (72 x 72 mm) and the overall depth 103.5 mm.

### Equipped with a Dust Cover as a Standard Feature

All models are equipped with a dust cover as a standard feature, and the setter can be operated from outside the dust cover.



### Counting Input can be Prohibited.

By applying input to the counting input inhibit terminal, counting input can be interrupted to stop counting.

### Retentive Memory without Battery Backup

An EEPROM is used for memory storage and a battery that does not require maintenance is used.

### A Wide Range of Supply Voltage

The KCX-□W/WM has a wide range of input voltages from 4.5 to 30 V DC and supports input sources from 5 to 24 V systems. Moreover, one model can cover a supply voltage of 90 to 132 V AC and 180 to 264 V AC, thus can be used across a wide range of supply voltages.

### Wide Variable Range for Output Time

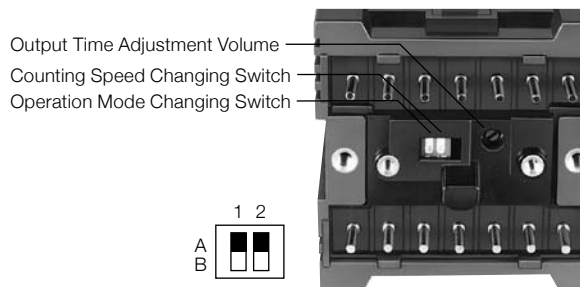
In the case of the specific time output (A-type operation), the output time can be varied from approx. 50 to 1,000 ms using the volume on the back of the counter.

### For the Specific Time Output Type and the Self Holding Output Type

Specific time output (A-type operation) and self-holding output (B-type operation) can be switched from a switch on the back.

### For Both Low Speed Input and High Speed Input

Low speed input (10 Hz) and high speed input (3- to 4-digit = 2 kHz, 5- to 6-digit = 5 kHz) can be switched from a switch on the back.



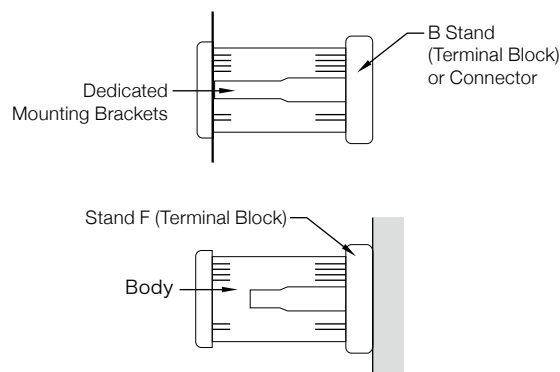
	Switch 1	Switch 2	
	Operation mode	Counting speed	
A	A-type operation	2 kHz (3-4 W / 4 WM)	5 kHz (5-6 W / 6 WM)
B	B-type operation	10 Hz	

### Built-in Power Source for Sensors

Since the counter has a 12 V DC, 50mA built-in power source for sensors, it can be connected to proximity sensors, photoelectric sensors, and rotary encoders.

### For Both Embedded and Surface-Mount Installation

In the case of embedded installation, the counter can be attached to the panel simply by tightening the dedicated mounting bracket from the back side. In the case of surface-mount installation, the counter can be mounted to and removed from the F terminal (terminal block) by one-touch operation.







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# KCX-□W/WM

## Specifications

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Electronic Counter

Tachometer

Digital Timer

Programmable Cam

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## Specifications

Model Number	Standard	KCX-3W	KCX-4W	KCX-5W	KCX-6W
	Retentive Memory Type	—	KCX-4WM	—	KCX-6WM
Digit		3 digits	4 digits	5 digits	6 digits
Operation Format	First set: Only B type (Self-holding output) Second set: A type (Specific time output) Can be switched to B type (Back side switch).				
Count Input	Maximum counting speed	10 Hz 2 kHz Changed by switch		10 Hz 5 kHz Changed by switch	
	Minimum pulse width	10 Hz: 50 ms 2 kHz: 0.25 ms		10 Hz: 50 ms 5 kHz: 0.1 ms	
	Input resistance	6 kΩ			
	Input voltage	"L" 0 to 2 V, "H" 4.5 to 30 V			
Disabled Count Input	Response time	On delay: 0.25 ms or less Off delay: 0.25 ms or less		On delay: 0.1 ms or less Off delay: 0.1 ms or less	
	Input resistance	6 kΩ			
	Input voltage	"L" 0 to 2 V, "H" 4.5 to 30 V			
External Reset	Response time	On delay: 10 ms or less Off delay: 2 ms or less		On delay: 4 ms or less Off delay: 0.8 ms or less	
	Input resistance	6 kΩ			
	Input voltage	"L" 0 to 2 V, "H" 4.5 to 30 V			
Automatic Reset	Reset time	0.5 ms or less		0.2 ms or less	
Power Source Reset (KCX-3 to 6W)	Power supply shutdown time	200 ms or more			
	Reset time	200 ms or less			
Voltage Output	Output resistance	1.2 kΩ (No-load voltage 12 V)			
	Output current	Source: 2.5 mA Sink: 8 mA			
	Withstand voltage	45 V			
	Output time	50 ms to 1 s			
Contact Output	Contact capacity	250 V AC 2A			
	Number of circuits	1 make (1c)			
	Output time	50 ms to 1 s			
	Mechanical life	10 million times or more (Resistance load)			
	Electrical life	1 million times or more (Resistance load)			
Input/Output Response Time	Voltage Output	10 Hz: 10 ms 2 kHz: 0.4 ms		10 Hz: 10 ms 5 kHz: 0.15 ms	
	Contact output	10 Hz: 20 ms 2 kHz: 10 ms		10 Hz: 20 ms 5 kHz: 10 ms	
Power Failure Memory Function KCX-4WM KCX-6WM		EEPROM Number of overwrite cycles: 100,000 cycles or more			
	Storage time	10 years			
	Input gate response time when power failure occurs	200 ms or less			
	Input gate response time when the power returns	200 ms or less			
Power Source for Sensor	DC 12 V ±2 V 50 mA Ripple 5% (rms) or lower				
Supply Voltage	90 to 132 V AC/180 to 264 V AC 50/60 Hz Approx. 5.5 VA				
Use Ambient Temperature	Power-on: 0 to +40°C Memory storage: -10 to +50°C				
Storage Temperature	-20 to +55°C				
Use / Storage Ambient Humidity	35 to 85% RH (No condensation)				
Weight	0.5 kg				
Withstand Voltage	2kV AC 1 min (Between AC power supply terminal, E terminal, and relay contact terminal)				
Insulation Resistance	500 V DC 20 MΩ or higher				
Vibration Resistance	Compliant with JIS C 0911. Endurance vibration: Displacement amplitude 0.5 mm 10 to 55 Hz, 3 axial directions Malfunction vibration: Displacement amplitude 0.35 mm 10 to 55 Hz, 3 axial directions				

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# KCX-□W/WM

## Operation

### Operation

#### A-type Operation (Specific Time Output Operation)

- Counting is enabled 0.2 sec after the power is turned on.
- If an input of 4.5 to 30 V is applied to counting inhibit input terminal ③ during counting, the counting input can be interrupted to stop counting.
- If the counting inhibit input is removed, counting will resume.
- When the counting input number reaches the first set value (count up), output is produced. Since the first set output is only for B-type operation, the output is retained by itself.
- When the counting input number reaches the second set value, the second set output is produced. At this time, when the counter counts up, the counting circuit and the counting display are automatically and simultaneously reset, thus counting will resume.
- At the same time that the second set output becomes 0, the first set output also becomes 0.
- If an input of 4.5 to 30 V is applied to external reset input terminal ⑦ during counting, the discrete value is reset to 0. Moreover, at this time, if the counter counts up in the first setting or both the first and second setting, the output is also reset.
- The KCX-□WM has a power failure memory function that can memorize the discrete value and the output state if the power is shut down.
- In the case of the KCX-□W, if the power is supplied after being shut down for 0.2 sec or longer, the power source reset circuit operates to reset the discrete value and the output.

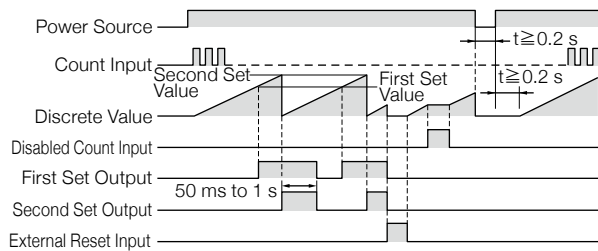
#### B-type Operation (Self-holding Output Operation)

- Counting is enabled 0.2 sec after the power is turned on.
- If an input of 4.5 to 30 V is applied to counting inhibit input terminal ③ during counting, the counting input can be interrupted to stop counting.
- If the counting inhibit input is removed, counting will resume.
- When the counting input number reaches the first set value (count up), output is produced. Since the first set output is only for B-type operation, the output is retained by itself.
- When the counting input number reaches the second set value, the second set output is produced and retained by itself.
- When an input of 4.5 to 30 V is applied the external reset input terminal ⑦, the discrete value and the output are reset.
- The KCX-□WM has a power failure memory function that can memorize the discrete value and the output state if the power is shut down.
- In the case of KCX-□W, if the power is supplied after being shut down for 0.2 sec or longer, the power source reset circuit operates to reset the discrete value and the output.

- Electronic Counter
- Tachometer
- Digital Timer
- Programmable Cam

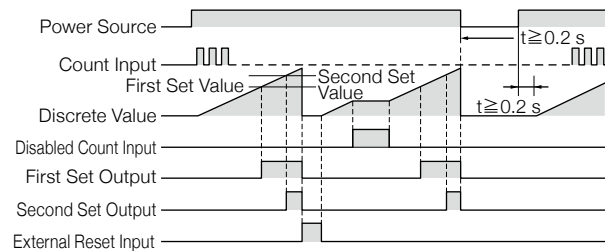
#### 《Normal type》

When resetting the counting: ①Add the external reset signal.  
Or shut down the power source ② temporarily (0.2 s or longer).



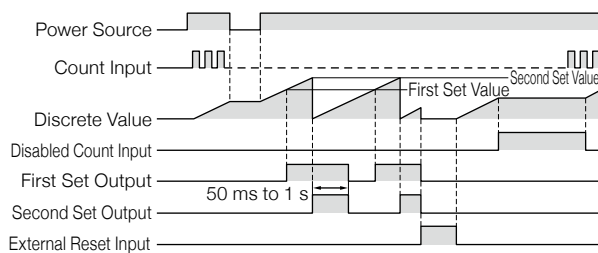
#### 《Normal type》

When resetting the counting: ①Add the external reset signal.  
Or shut down the power source ② temporarily (0.2 s or longer).



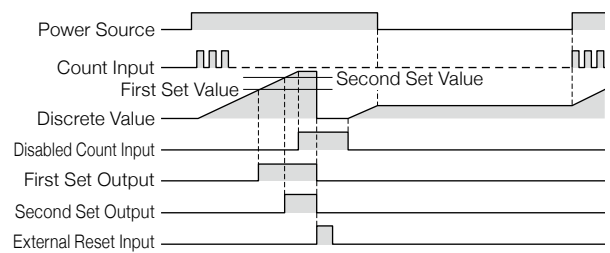
#### 《Retentive memory type》

When resetting the counting: Add the external reset signal.



#### 《Retentive memory type》

When resetting the counting: Add the external reset signal.



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# KCX-□W/WM Connection

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- Electronic Counter
- Tachometer
- Digital Timer
- Programmable Cam

## Terminal Assignment

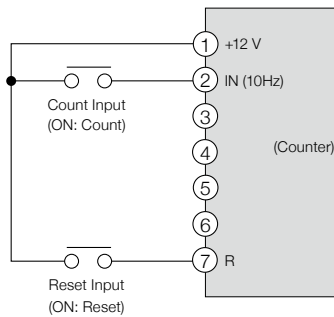
Terminal Number	Symbol	Description
1	+12 V	Power source for sensor
2	IN	Count Input (Low speed / High speed switch change)
3	INH	Disabled count input
4	E	Ground
5	OUT1	Non-contact output
6	OUT2	Non-contact output
7	R	External reset input
8	OUT1	Contact output (a-contact)
9	OUT1	Contact output (a-contact)
10	OUT2	Contact output (a-contact)
11	OUT2	Contact output (a-contact)
12	180 to 264 V AC	AC power input
13	90 to 132 V AC	
14	0 V AC	

## Terminal Connections

### Connection of Counting Input

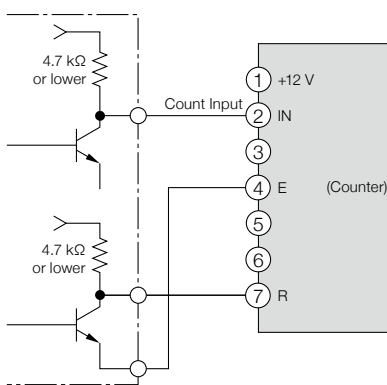
#### 1. In the case of contact input signals

Change the switch setting on the back to low speed input (10 Hz).

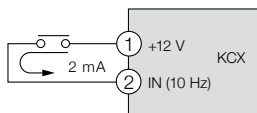


#### 2. In the case of no-contact input signals

The counting input can be selected from low-speed input and high-speed input.



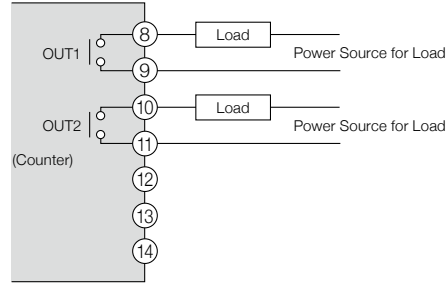
When used as shown in the figure below, the voltage and current that flow through the contact point are around 2 mA. Therefore, the use of the contact point for minute electric current improves reliability. Since the contact point of the electromagnetic switch is designed for large current and high voltage, it is not suitable for use for contact input of the counter.



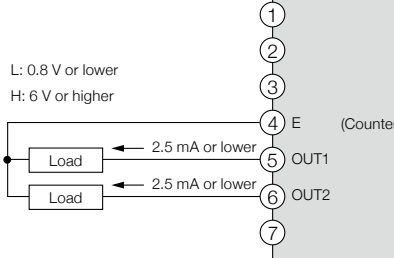
### Connection of the Output

#### 1. Contact output

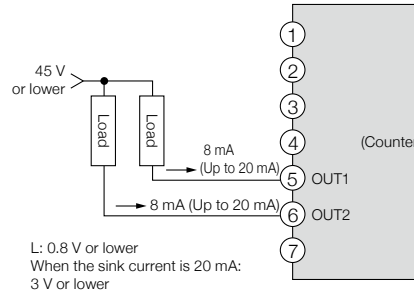
The contact output allows only a-a-contact for both the first setting and the second setting.



#### 2. Non-contact output (Source load)



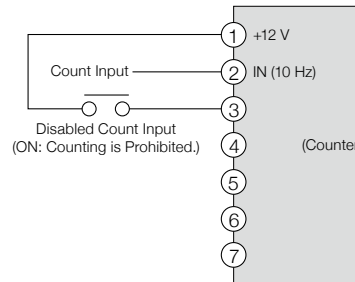
#### (Sink load)



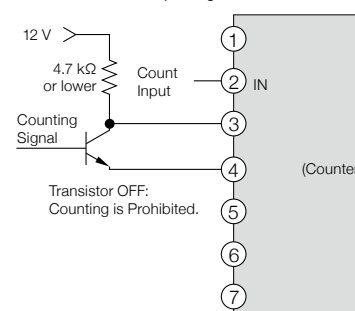
### Connection of a Counting Prohibit Input

#### 1. In the case of contact input signals

If counting is prohibited for the contact signal, the counting input can be used only for low-speed input.



#### 2. In the case of no-contact input signals



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