JTEKT

Single and dual preset addition/subtraction counter

KCN-4W/6W

OPERATIONS MANUAL

Thank you for choosing our single and dual preset addition/subtraction counter for your control needs. Please read through this manual before using your new counter.

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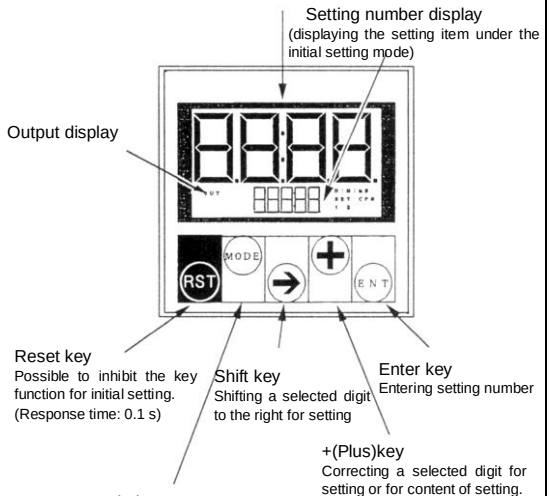
JELWX-M8373B-E

■ Panel functions

Count number display(Zero suppression)
Character heights: 13mm (4 digits)
10mm (6 digits)
(details of setting display see initial setting mode)

Setting number display
(displaying the setting item under the initial setting mode)



Reset key
Possible to inhibit the key function for initial setting.
(Response time: 0.1 s)

Shift key
Shifting a selected digit to the right for setting

Enter key
Entering setting number

+(Plus)key
Correcting a selected digit for setting or for content of setting.

Mode key
For display setting.
It is possible to switch modes for operation , or for initial setting when the mode key is depressed with the +(plus) key 。

■ Specifications

Item	Specitications	
Feature	Addition/subtraction counter	
Setting	Single/dual switching	
Digit number	4 or 6digits（2modes）	
Count input	Count speed: 30/1k/2k/5kHz（Switching by key） (Refer to "Count timing" for phase difference and logic) Input impedance: 15kΩ (positive logic) 3.3kΩ (negative logic) (DC type1.8kΩ） Input voltage:0~3V (L), 7~30V (H)	
External resetting	Input response:5ms(on-delay) 5ms(off-delay) Input impedance: 15kΩ (positive logic) 3.3kΩ (negative logic) (DC type1.8kΩ） Input voltage:0~3V (L), 7~30V (H)	
Manual resetting	Input response :0.1sec	
Auto resetting	500μ s (2.5ms for 5kHz count speed)	
Power sourse resetting	Shutdown time:1 sec Rest time:1 sec	
Count inhibit input	Input response:2.5ms(on/off-delay) Input impedance: 15kΩ (positive logic) 3.3kΩ (negative logic) (DC type1.8kΩ） Input voltage:0~3V (L), 7~30V (H)	
output	Transistor output	NPN open collector output 24V,100mA Withstanding voltage 35V Residual voltage less than 2V
	Relay output	Normally open 220VAC,2A (resistive)
Output operation	One shot/rerention/comparison（9 types）	
One shot time	10ms~9990ms	
Prescale	0.001~9.999 (4 digits) 0.001~99.999 (6 digits)	
Decimal point	Free setting at any point（Switching by key）	
Power source	AC type：AC90~264V Power Consumption 5VA DC type：DC10~30V Power Consumption 2W	
Power source for sensor	DC20~28V， 60mA (Only AC-type models)	
Weight	About150g(AC type) About 110g(DC type)	

■ Key operation

● Switching between operation mode and initial setting mode

Operation mode ① → Initial setting mode
Initial setting mode ② → Operation mode

① MODE • ＋
② MODE • ＋ Depress the two keys synchronous for more than0.5sec.(The operation mode will be recovered automatically if no key being depressed within 1min)

● Preset-value correction

The preset-value correction must be procession under the operation mode

MODE Switching of the preset-value display SET2⟷SET1
(Only for dual preset)
→ Selection the digit
＋ Selection the number 0 1 2 3 4 5 6 7 8 9 (－)
"(-)" is only for the most significant digit.
ENT Entering set numbers

● Correcting initial setting

The correction of initial setting must be made on the initial setting screen.

Count speed correction (Speed) MODE
＋ Selecting count speed 5000 2000 1000 30* [Hz]

Input mode correction (In) MODE
＋ Selecting input mode 9uRd → Rd.5b.*
(2 phases) (Separate input for add or sub)

Count memory correction (Count) MODE
＋ Selecting count memory CLEr* → rEtn
(Reset when power up) (memory against power down)

Count mode correction (C-dtr) MODE
＋ Selecting count mode uP* → dn
(add mode) (sub mode) For output type 1 to6 only.

Input logic correction (Signl) MODE
＋ Selecting input logic PoS → nEG*
(Positive) (Negative)

Selecting single or dual (Prset) MODE
＋ Setting the preset for single or dual 2* → 1
(dual setting) (Single setting)

Output operation correction (C-op) MODE
＋ Selecting output operation type 1*2 3 4 (5)(6)7 8(9)
Numbers enclosed in parentheses are effective only for dual setting. The count mode for type 7 to 9 is forced to addition mode.

Out2 timing correction (Out-t) Only for type 2、3、6. MODE
→ Selecting digit 0100 ms*
The least significant digit is fixed to '0'. Setting vale "0" cannot be made.
＋ Selecting a number 0 1 2 3 4 5 6 7 8 9

Out1timing correction (Out-t) Only for type 5、6. MODE
→ Selecting digit 01.000*
Setting vale "0" cannot be made.
＋ Selecting a number 0 1 2 3 4 5 6 7 8 9

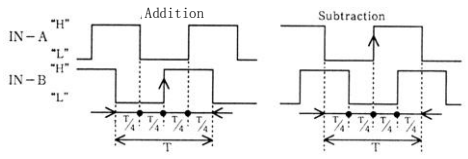
Prescale correction (Scale) MODE
→ Selecting the range of display nnnnnH.*
H X X X X X X
"H" specifies 1 digit of the count value.
＋ Selecting decimal point setting mode
→ Selecting decimal point position
n.n.n.n.n.n. to display selecting decimal point position

Reset key correction (Reset)
＋ Selecting function of the reset key EnAb* → diSA
enabling the reset key Disabling the reset key

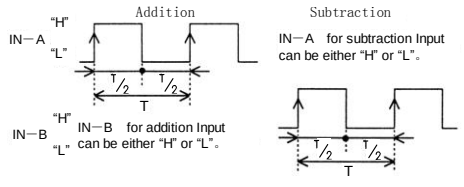
（Note）
1.Be sure to depress the ENT key for writing after correcting each setting.
If this process is neglected ,the corrected content will be void.
2.'*' specifies a setting mode for shipment.
3.Be sure to depress RST key whenever the initial setting is corrected.
4.Decimal point setting can be made as following example:
If 1.200 for prescale, and nnn.nHn for decimal point setting are set up. The count value display will be shown as below for each pulse:
0.012→0.024→0.036→0.048→0.060……

■ Count timing

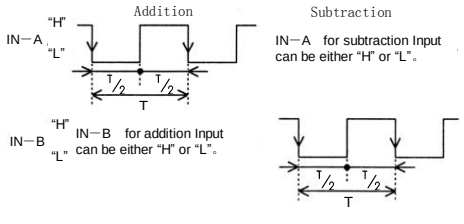
● Two-phase input mode



● Separate input mode of addition or subtraction(positive logic）



● Separate input mode of addition or subtraction(negative logic）

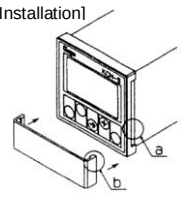


Note：
For counting ↑ or ↓ Required count speed (Hz) = 1/T sec

■ Installation of protection cover

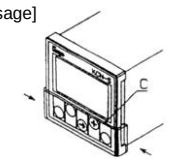
Purpose：To protect the counter from the erroneous operation of the key.

[Installation]



Install the protection cover by completely pushing down the hook （b) into the groove(a) of the KCN counter BOX。

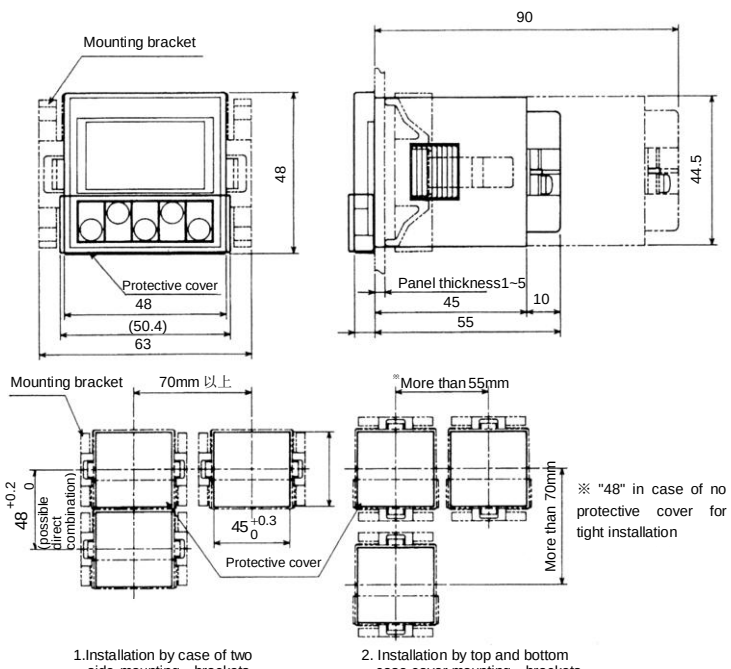
[Usage]



For setting, push the protection cover lightly by the finger to the direction as pointed by the arrow sign which shown in the drawing.

Note:
Be careful to move the protection cover. Because it may become difficult to read for scratches made on the display window and the protection cover.
1) Please keep the parts below clean: the cut surface of the upper part of the protection cover(c),the surface of the display window, and the protection cover.
2) Do not push up or down the center of the protection cover by pressing it.

■ External appearance and dimensions Unit: mm

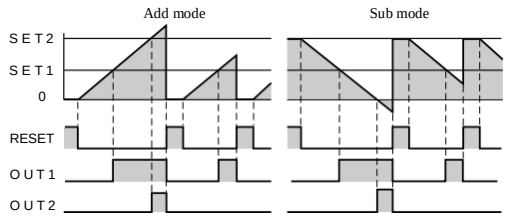


1.Installation by case of two side-mounting brackets

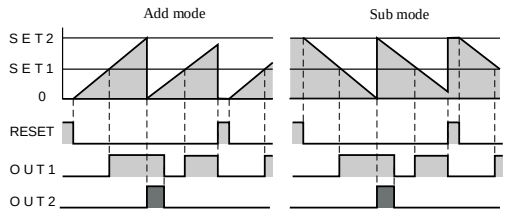
2. Installation by top and bottom case cover mounting brackets

■ Counter output operation type

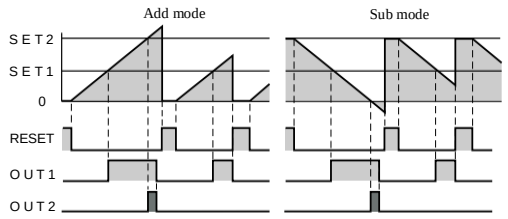
type 1 OUT2: retentive output / count continuation
OUT1: retentive output



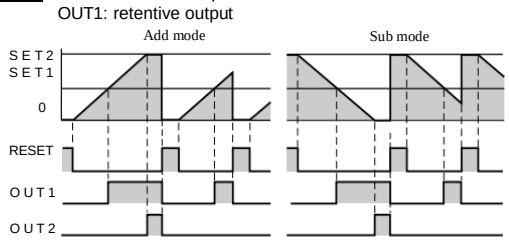
type 2 OUT2: one-shot output / count resetting
OUT1: retentive output



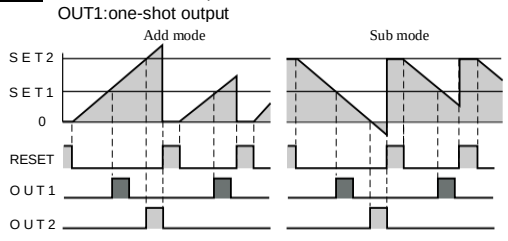
type 3 OUT2: one-shot output / count continuation
OUT1: retentive output



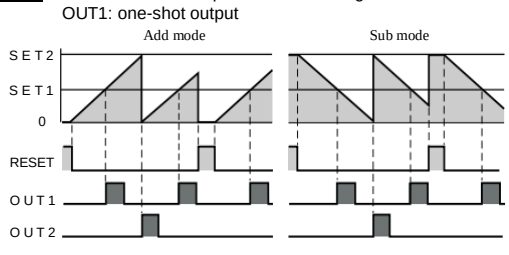
type 4 OUT2: retentive output / count retention
OUT1: retentive output



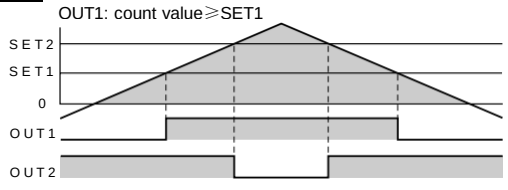
type 5 OUT2:retentive output / count continuation
OUT1:one-shot output



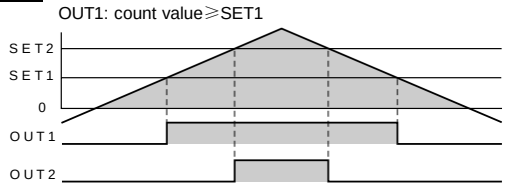
type 6 OUT2: one-shot output / count resetting
OUT1: one-shot output



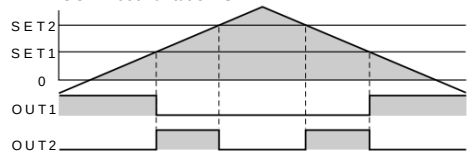
type 7 OUT2:count value≤SET2
OUT1: count value≥SET1



type 8 OUT2: count value≥SET2
OUT1: count value≥SET1



type 9 OUT2:SET1≤count value≤SET2
OUT1: count value＜SET1



（Note）
1) SET1 and OUT1 are effective only for dual setting.
2) ⌐ shows "one-shot output" (10ms ~ 9990ms).
3) type5、6、9 is effective only for dual setting..
4) Because 2.5ms is required for automatic resetting when 5kHz of speed setting is arranged .So you cannot select the 5kHz speed for type 2 and 6.

■ Table of errors

Display		Description※
Count number	Preset number	
FFFFFF	Preset number	Counter overflow
－FFFFF	Preset number	Counter underflow
Err	PSEt PSEt2 PSEt1	Preset value memory data error Errors for exceeding a range of internal counting when the preset value is divided by the prescale value. with classification of '1' or '2'.
	SPEED	Count speed memory data error
	C－oP	Output operation mode memory data error
	out－t1	OUT1 output time memory data error
	out－t2	OUT2 output time memory data error
	SCALE	Prescale memory data error
	Point	Decimal point memory data error

※The memory data error will be generated whenever the setting data change to the unrealistic data.

● How to release from the error condition

Depress RST key for counter overflow or underflow to reset the counter. Or release the error display when the count number return to the number within the range of the display.

Depress ENT key for other setting errors to delete the error display. The error will be release when the correct setting number is then input.

Note:

○The counter is correctly counting numbers within a range of－2147483.648 to 2147483.647 in the counter, even when a counter overflow or underflow error is generated.

○ The error will be checked when the power source is turned on. The counting or outputting operation will not be made except during an overflow or underflow error.

■ Caution

● The 0V terminal ⑬ for DC-type counters of power supply and the input common (0V) terminal ⑤ are connected in the counter.

● The power source voltage should be instantly applied for the rated voltage by the switch or relay instead of gradual voltage increasing.

● A surge current may be given whenever the power source is applied because if the switching type of power supply built in for the internal circuit of the counter. Be careful to use a power supply of enough capacity.

● Be sure to reset the count value Whenever the initial setting is corrected.

● Be sure to use a power supply of DC20V-30V for connecting the DC-type counters with the DC2 wire type of proximity switch.

● Use the counter with negative logic setting for input logic if the 2 wire type of proximity switch is connected.

● The correction of the pre-set value in the middle of counting will be effective from the time when ENT key is depressed.

● Be sure to keep the initial setting and the pre-set value in memory for maintenance.

● Avoid using this product under the following conditions:

(1) Where the ambient temperature exceeds a range of -10℃~50℃.
(2) Where the ambient humidity exceeds 85%RH or when dew condensation will result from a sudden change in temperature.
(3) Where dust, iron powder, or corrosive gas is present.
(4) In direct sunlight.
(5) Where it will be subject to excessive vibration or shock.

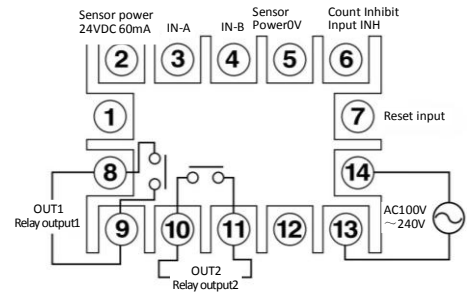
● Observe the following conditions for wiring:

(1) The signal wiring should be separated from the power line.
(2) Try to separate the unit and wiring as far as possible from the noise.
(3) The terminal not in use should not be used for other purposes.

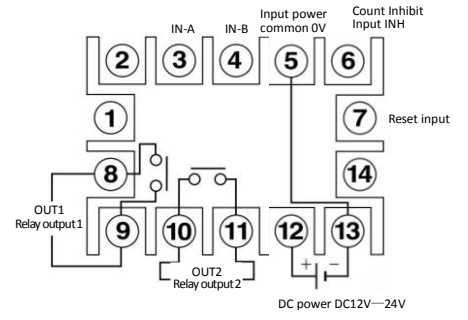
● Be sure to separate the product from the control circuit for dielectric strength or insulation resistance tests.

■ Terminal connection

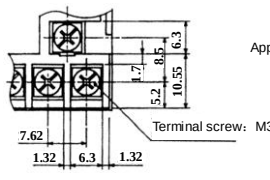
KCN-4/6WR



KCN-4/6WR-C



■ Terminal block dimensions:



Applicable wires: 0.25~1.65mm²