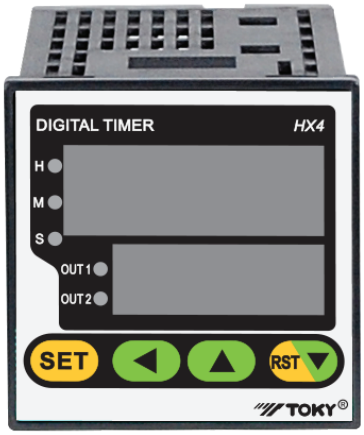
HX Series Multi-function Timer Relay User Manual



Features:
⊙Dual line 6 digits LED display, upper row red, bottom row green
⊙9 kinds of timing range for option.
⊙9 kinds of timing mode for option.
⊙Universal input, NPN or PNP input can be selected by software
⊙2 loops relay output
⊙Applicable to the timing control of light industries, machinery, packing, food industries, etc.

For your safty, please read following content carefully before using the Meter!

I. Safe Caution

※ Please read the manual carefully before using the meter.

※ Please comply with the below important points.

⚠ Warning Failure to follow the instructions may cause accidence.

⚠ Notice Failure to follow the instructions may result in product damage.

※ The instruction of the symbol in the manual is as below.

⚠ Accidents or dangers may occur under special circumstances.

⚠ Warning

1. A safty protection equipment must be installed or please contact us for relative information if the product is used under the circumstance such as nuclear control, medical treatment equipment, automobile, train, airplane, aeronautics, entertainment or safety device, etc. Otherwise, it may cause serious loss, fire or person injury.
2. The panel must be installed, otherwise electric shock may occur.
3. Do not touch wire connectors when power on, otherwise may get electric shock.
4. Do not dismantle or modify the product, please contact us if you have to do so. Otherwise it may cause electric shock and fire.
5. Please check the connection number while you connect the power supply wire ore input signal, otherwise it may cause fire.

⚠ Caution

1. This product cannot be used outdoor, otherwise, the product lifespan will be shortened, or electric shock accident may occur.
2. When connect wire to the power input connectors or signal input connectors, the torque of screw No.20AWG(0.50mm $_2$)to terminal should be 0.74n·m - 0.9n·m. Otherwise the connectors may be damaged or get fire.
3. Please comply with the rated specification. Otherwise it may shorterned the product lifespan or casue fire.
4. Please do not use water or oil base cleaner to clean the product. Otherwise it may cause electric shock or fire, or damage the product.
5. This unit should be avoided in inflammable, explosive, humid, direct sunlight, thermal radiation, vibration and other places. Otherwise, it may cause explosion.
6.There must be no dust or sediment in this unit.Otherwise, it may cause fire or mechanical failure.
7.Do not use gasoline or chemical solvent to clean the instrument housing. Using these solvents can damage the instrument housing. Please clean the plastic housing with a soft wet cloth (water or alcohol).

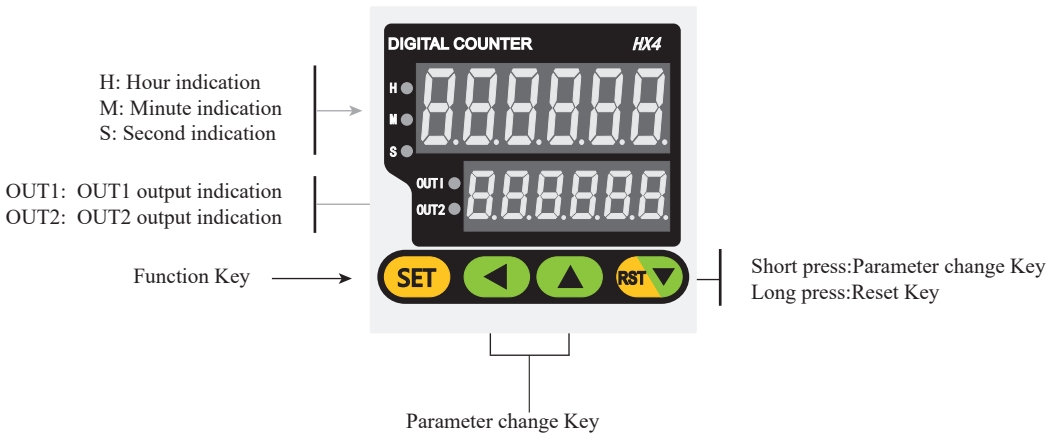
II. Model

No.	Model	Panel dimension(mm)	Output	Display digits	Alarm output
1	HX7-RR40W	72H×72W	Relay output	6 digits	2
2	HX4-RB40W	48H×48W	Relay output	6 digits	2

III. Technical Specification

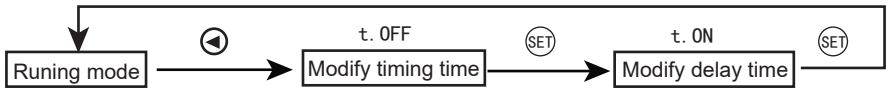
Series		HX	
Display		Dual Line 6 digits	
Power Supply		100-240V AC/DC	
Allowable voltage fluctuation range		90-110% of rated voltage (AC power)	
Input pulse width		INA,INHIBIT,RESET,BATCH RESET,1ms and 20ms for option.	
Input		Voltage Input: input impedance 5.4KΩ, "H"：5-30VDC "L":0-2VDC No-voltage Input: for Short-circuit impedance is 1KΩ, Residual Voltage: Max 2VDC Open-circuit impedance Max 100KΩ	
One-shot output		10/50/100/200/500/1000/2000/5000ms	
Control Output	Contact Capacity	NO:250VAC 3A Impedance NC：250VAC 2A Impedance	
	SSR Capacity	Max 30VDC, max 100mA	
Data Saving Time		10 years	
External Sensor Power Supply		12VDC±10% less than 100mA	
Ambient Temperature		-10℃～50℃ （Ice free state）	
Storage Temperature		-25℃～65℃ （Ice free state）	
Ambient Humidity		35-85%RH	
Time accuracy		Active time function Voltage false Setting False Temperature False	When power on：±0.05%±0.05sec When incoming signal：±0.05%±0.03sec
Dielectric Strength		Min 100MΩ (at 500VDC)	
Withstand Voltage		2000V AC 50/60Hz 1 minute	
Interferance (AC Power)		±2kV Square-wave generator interference (pulse width: 1us)	
Vibrate	Mechnical	Amplitude: 0.75mm Frequency: 10to 55Hz X,Y,Z each direction for one hour	
	Fault	Amplitude: 0.5mm Frequency: 10to 55Hz X,Y,Z each direction for ten minutes	
Impact	Mechnical	300/S^2 (about 30G) X,Y,Z each direction for three times	
	Fault	100/S^2 (about 10G) X,Y,Z each direction for three times	
Lifespan	Mechnical	More than 10,000,000	
	Electrical	More than 100,000 (NO:250VAC 3A load NC:250VAC 2A load)	

IV.Panel Indication



V. Operation Instruction

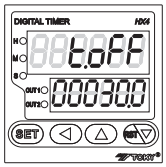
1.Timer setting value modification (When output mode is FLK, how to modify timing set value)



∴Under set value modification status, if no operation within 60 seconds, the meter will automatically return back to timing status.

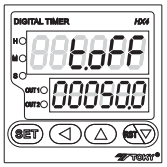
How to modify t.OFF time from 30 seconds to 50 seconds, modify t.ON time from 40 seconds to 20 seconds
(output model: FLK timing range: 0.1s~99999.9s).

(1)

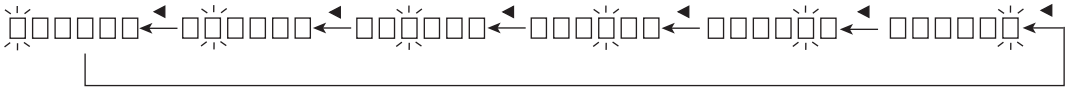


Under timing status, press ◀ key to enter t.OFF modification status. Press ◀ key again to select digit " 3 " and let it blink.

(2)

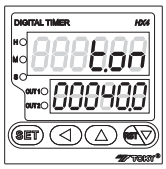


Press ▲ key twice to modify " 3 " to " 5 ". Press SET key to confirm the setting and enter t.ON modification status.



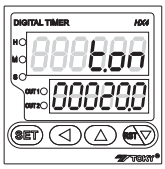
∴Under timing status press ◀ key to enter set value modification status, the digits blink in a loop from right to left.

(3)



Press ◀ key to select digit " 4 " and make it blink.

(4)



Press ▼ key twice to modify " 4 " to " 2 ". Press SET key to confirm the setting and return back to timing status.

VI. Timing Function Mode Setting

Setting mode	Select setting ▲ ▼
Time range	SEC 9999.99 → SEC 99999.9 → SEC 999999 → n S 99.59.99 → n S 999.59.9 → n 99999.9 → H n 999999 → H n S 99.59.59 → H n 9999.59
Up/Down mode (U-d)	U Up ⇄ d Down Up: Timing value increases from 0 to the set value Down: Timing value decreases from the set value to 0 Note: CAS、CIC、S-D output mode is without this menu
Output mode (oUt)	ond → ond.1 → ond.2 → FLY → FLY.1 → FLY → FLY.1 → FLY.2 → nt.1 → nt → oFd → CAS → CIC → S-d
Output time (oUtt)	10 → 50 → 100 → 200 → 500 → 1000 → 2000 → 5000 → HoLd (Unit: ms) Output delay time option
Input logic (SIG)	▲ and ▼ : Input mode choose Voltage Input： PnP No voltage input： nPn
Signal time input (In-t)	1 ⇄ 20 (Unit:ms) Minimum signal width option for INA、INHIBIT、RESET、BATCH RESET
Lock (LoCY)	L.oFF → LoC.1 → LoC.2 → LoC.3
Software version (UEr)	Software version code

※ Under function mode, input signal and output are still valid. But when it exits function mode, timing value and output will be reset.

※ When output mode is FLK、INT、INT.1、OFD, there is no output time setting.

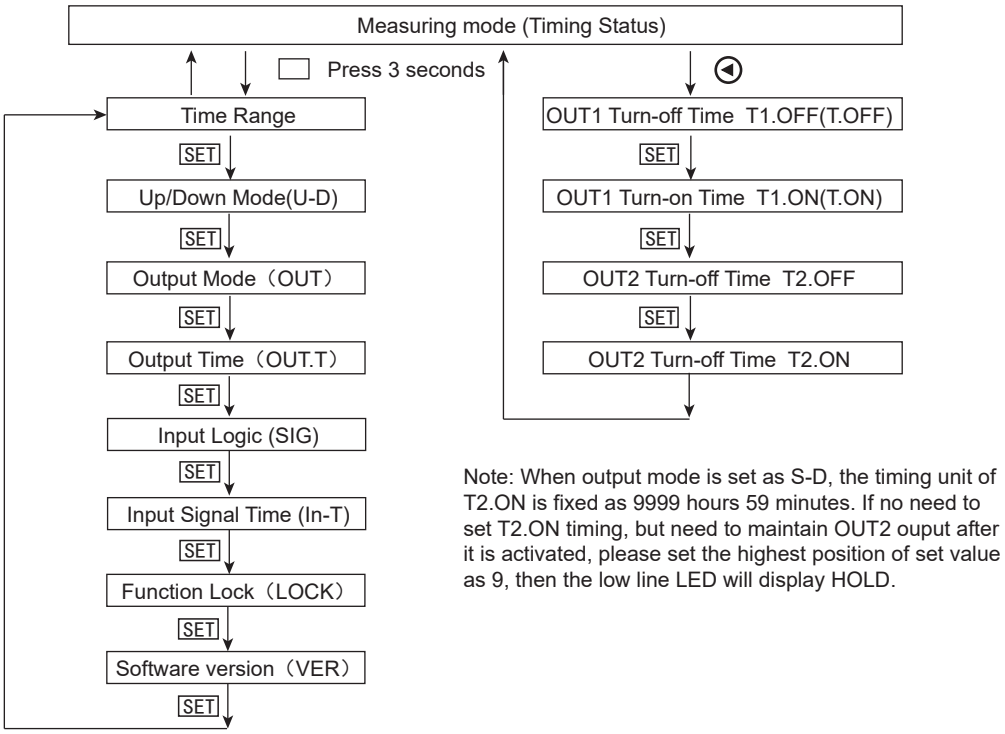
※ Under function setting mode, if there is no operation to the keys within 60 seconds, the meter will return back to timing status.

VII. Timing Range

Time range	Function setting	
	Display unit	Display range
0.01s～9999.99s	SEC	9999.99
0.1s～99999.9s	SEC	99999.9
1s～999999s	SEC	999999
0.01s～99m59.99s	mS	99.59.99
0.1s～999m59.9s	mS	999.59.9
0.1m～99999.9m	m	99999.9
1m～999999m	m	999999
1s～99h59m59s	HmS	99.59.59
1m～9999h59m	H m	9999.59

Symbol \ Input type	Voltage input（PNP）	Contact input（NPN）
H	5-30VDC	Short circuit
L	0-2VDC	Open circuit

VIII. Action Mode Switch

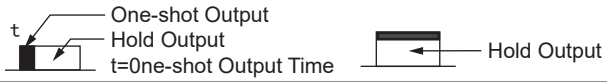


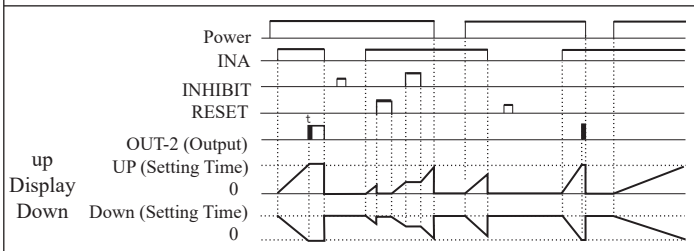
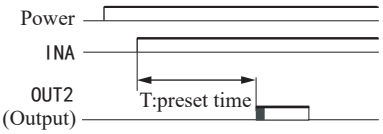
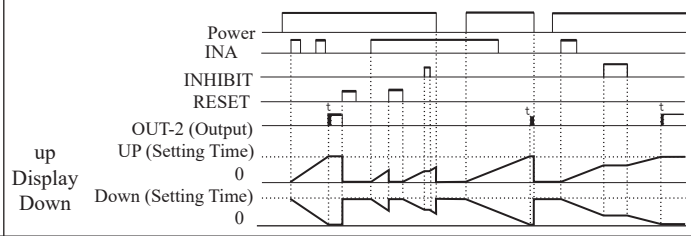
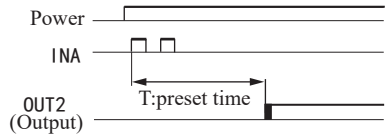
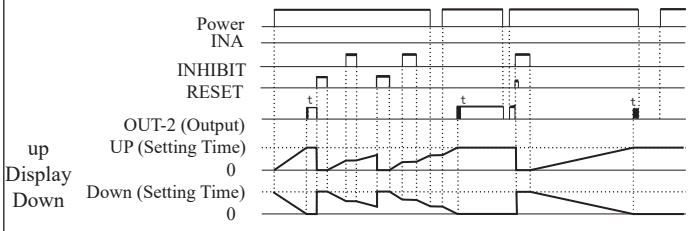
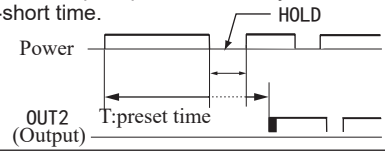
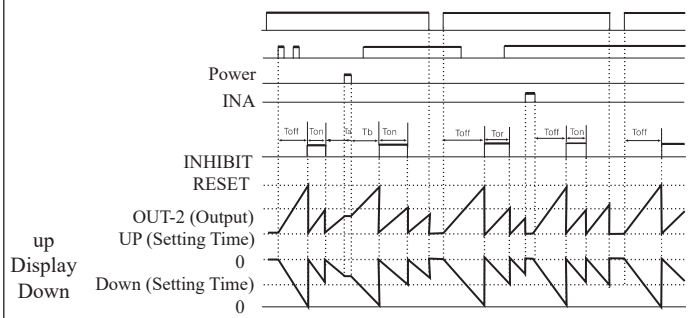
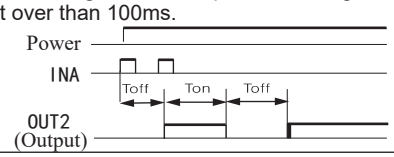
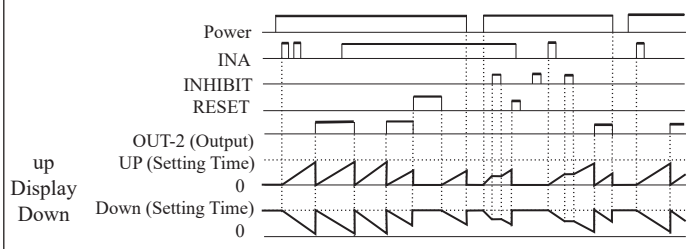
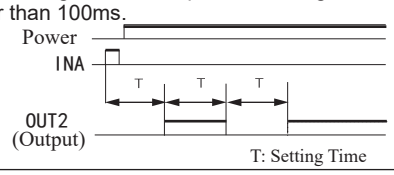
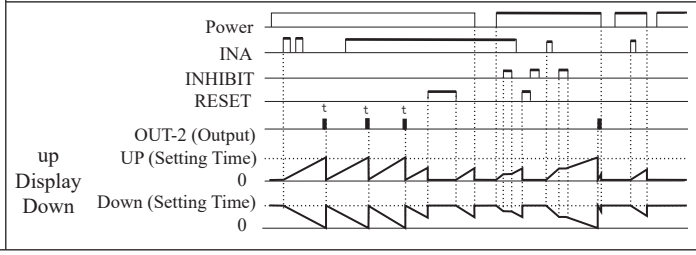
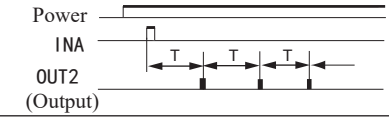
Note: When output mode is set as S-D, the timing unit of T2.ON is fixed as 9999 hours 59 minutes. If no need to set T2.ON timing, but need to maintain OUT2 ouput after it is activated, please set the highest position of set value as 9, then the low line LED will display HOLD.

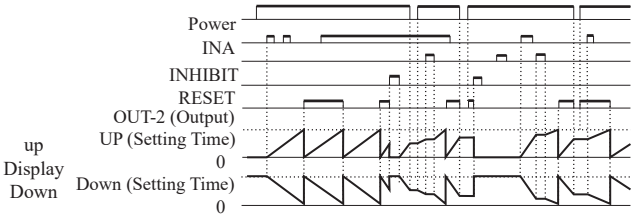
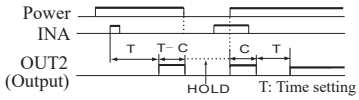
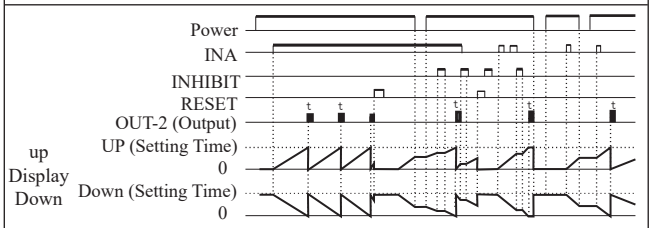
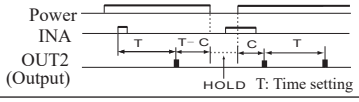
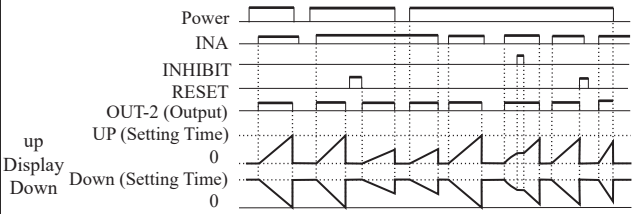
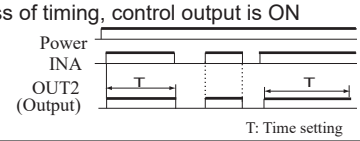
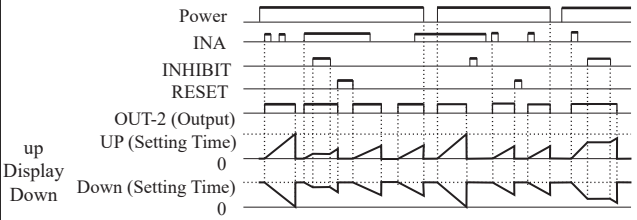
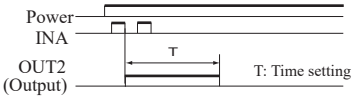
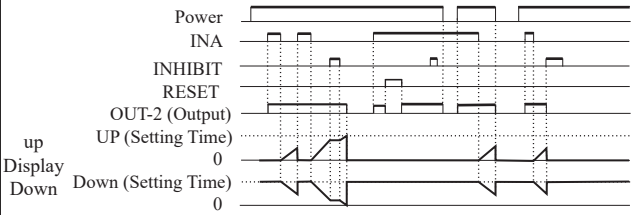
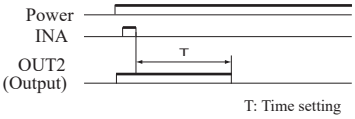
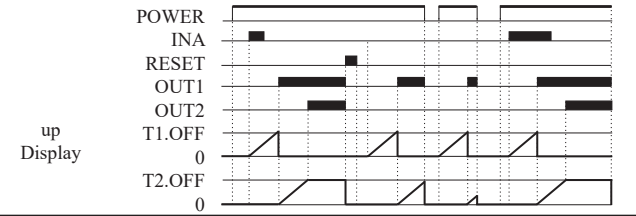
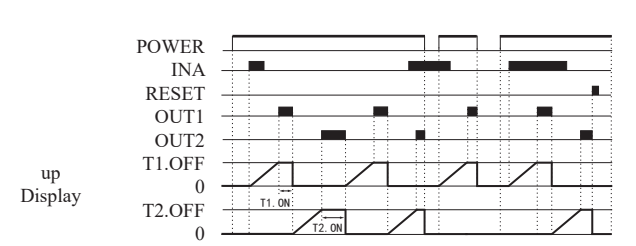
※Under function setting mode, if there is no operation in 60 seconds, the meter will return back to measuring mode.

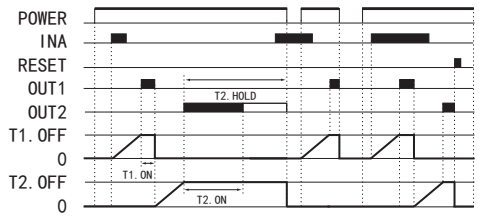
※Enter function setting mode and long press Function Key will return back to measuring mode, and trigger reset operation.

Timer Output Operation Mode



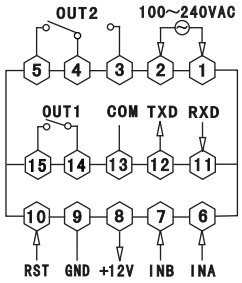
Output Mode	Time and Sepuence	Activation
ond (OND)	SIGNAL ON DELAY (POWER OFF RESET) 	1. Timer starts when INA signal turns ON; when INA signal turns OFF, time reset. 2. Timer starts when power turns ON and when reset turns OFF during INA signal ON. 3. Control output operate decide by hold or One-short time. 
ond.1 (OND. 1)	SIGNAL ON DELAY 1 (POWER OFF RESET) 	1. Timer starts when INA signal turns ON; when INA signal turns OFF, timing keeps on. 2. counting starts when power turns ON , Reset signal OFF and INAsignal ON 3. Control output operate decide by hold or One-short time. 
ond.2 (OND. 2)	POWER ON DELAY (POWER OFF COUNTING KEEP) 	1. Timing starts when power on and the data will be keeped when power off. 2. counting starts when reset signal OFF ,Pause signal OFF and power ON 3. Control output operate decide by hold or One-short time. 
FLY (FLK)	FLCKER (Power OFF Reset) 	1. Timing starts when INA signal turns on, if INA signal is applied repeatedly, only initial signal is recognized. 2. When power ON , reset signal is OFF and INA signal ON, it starts to timing. 3. Control output operation is decided by hold output, when the time comes to Toff setting time or Ton setting time, output is ON or OFF. (No One-shot output) 4. Each Ton time and Toff time should be setted sepertately. 5. When using terminal output, the setting time must over than 100ms. 
FLY.1 (FLK. 1)	FLCKER1 (Power OFF Reset): Hold output 	1. Timing starts when INA signal turns on, if INA signal is accepted, only initial signal is recognized. 2. When power ON , reset signal is OFF and INA signal ON, it starts to timing. 3. Control output operate decide by hold output, when using terminal output, the setting time must over than 100ms. 
	FLCKER1 (Power OFF Reset): One-shot output 	1. Timing starts when INA signal turns on, if INA signal is accepted, only initial signal is recognized. 2. When power ON , reset signal is OFF and INA signal ON, it starts to timing. 3. Control output operate decide by one-shot output, when using terminal output, the setting time must over than 100ms. 

FLK2 (FLK)	FLCKER2 (POWER OFF HOLD): HOLD OUTPUT 	1. Timing starts when INA signal turns on, if INA signal is accepted, only initial signal is recognized. 2. Control output operate is decided by Hold output which will be keeped to the next setting value. 3. When power ON , reset signal is OFF and INA signal ON, it starts to timing. 3. when using terminal output, the setting time must over than 100ms. 
	FLCKER2 (POWER OFF HOLD): One-shot OUTPUT 	1. Timing starts when INA signal turns on, if INA signal is accepted, only initial signal is recognized. 2. Control output operate is decided by One-shot output which will be keeped to the setting value. 3. When power ON , reset signal is OFF and INA signal ON, it starts to timing. 3. when using terminal output, the setting time must over than 100ms. 
int (INT)	INTERVAL (POWER/SIGNAL RESET) 	1. Timing starts when INA signal turns to ON. 2. Timing reset when INA signal turns to OFF. 3. When power ON, reset signal OFF and INA signal ON, it starts to timing. 4. Display value and Control output will reset automatically after reach the setting time. 5. In the process of timing, control output is ON 
int.1 (INT. 1)	INTERVAL (POWER OFF RESET) 	1. When INA signal turns to ON, control output will turns to ON and starts to counting. 2. If INA signal is repeatedly showed, only initial signal is recognized. 3. When power ON, reset signal OFF and INA signal ON, it starts to timing. 4. Display value and Control output will reset automatically after reach the setting time. 5. In the process of timing, the INA signal keeps ON 
oFd (OFD)	INTERVAL 1 (POWER OFF RESET) 	1. When power ON and reset signal OFF, in the time of INA signal ON, control output will keep ON status. 2.Display value and Control output will reset automatically after timing reach the setting time. 
CAS (CAS)	CASCADE(POWER/SIGNAL RESET) 	1. If power ON and reset signal OFF, when INA signal ON, T1.OFF starts timing. 2. When the timing reaches the T1.OFF setting time, OUT1 output (hold till reset ON or power OFF), the timing value return to zero, T2.OFF starts timing. 3. When the timing reaches the T2.OFF setting time, OUT2 output, OUT2 and the timing value hold till reset ON or power OFF.
CIC (CIC)	CICLIC ON/OFF(POWER/SIGNAL RESET) 	1. If power ON and reset signal OFF, when INA signal ON, T1.OFF starts timing. 2. When the timing reaches the T1.OFF setting time, OUT1 output, the timing value return to zero, meanwhile T1.ON starts timing. 3. When the timing reaches the T1.ON setting time, OUT1 turn off, the timing value return to zero, meanwhile T2.OFF starts timing. 4. When the timing reaches the T2.OFF setting time, OUT2 output, the timing value return to zero, meanwhile T2.ON starts timing. 5. When the timing reaches the T2.ON setting time, OUT2 turn off, the timing value return to zero, meanwhile T1.OFF starts timing again (this process will continue till reset ON or power OFF).

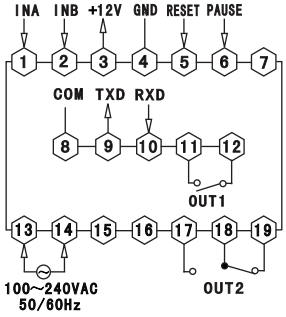
S-d (S-D)	START-DELTA(POWER/SIGNAL RESET) up Display 	1. If power ON and reset signal OFF, when INA signal ON, T1.OFF starts timing. 2. When the timing reaches the T1.OFF setting time, OUT1 output, the timing value return to zero, meanwhile T1.ON starts timing. 3. When the timing reaches the T1.ON setting time, OUT1 turn off, the timing value return to zero, meanwhile T2.OFF starts timing. 4. When the timing reaches the T2.OFF setting time, OUT2 output, the timing value return to zero, meanwhile T2.ON starts timing. 5. When the timing reaches the T2.ON setting time, OUT2 turn off or hold, the timing value hold or keep increasing till power OFF or reset signal ON.

IX. Connection

HX4



HX7



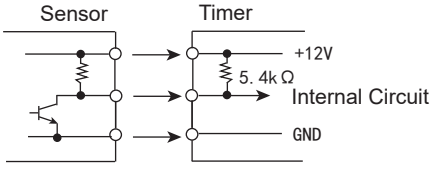
Note: If there is any change, please subject to the drawing on the meter!

X. Input Connection

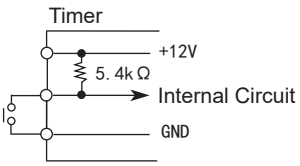
1. Input logic: without voltage input (NPN)

(1) SSR input

● Standard sensor: NPN output type sensor



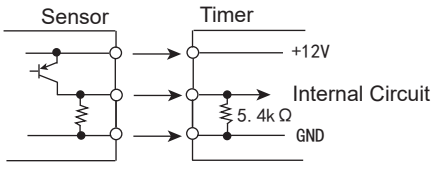
(2) Contact Input



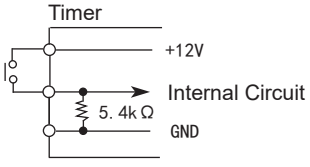
2.Input logic: voltage input (PNP)

(1) Input logic: without voltage input (NPN)

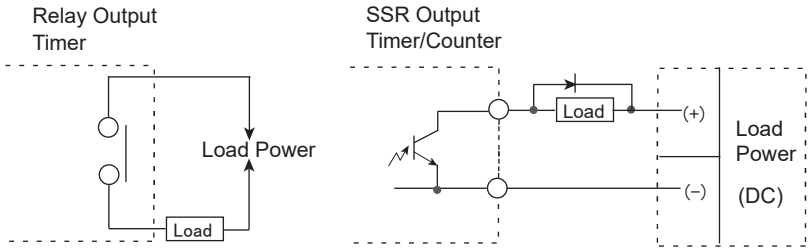
● Standard sensor: PNP output type sensor



(2) Contact Input



XI. Output Connection

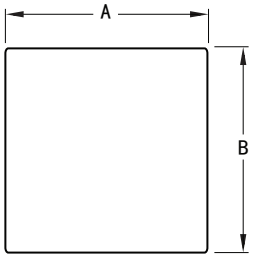


SSR Output:

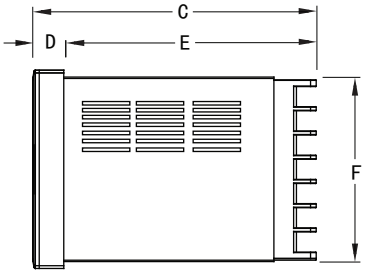
1. Please use adaptable load and power, SSR output can not over then ON/OFF, capacity (30VDC, less than100mA)
2. Make sure that the power connected in the right way.
3. When using Inductive load(Relay, etc), Filter circuit (Diode, Rheostat, etc) must connect to the load ends

XII. Dimension

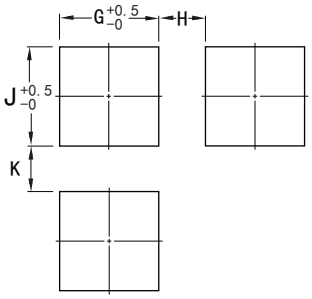
Panel Size



Side Face Size



Mounting Size



Model	A	B	C	D	E	F	G	H(Min)	J	K(Min)
HX4:(48*48)	48	48	97.5	3	94.5	45	45.5	25	45.5	25
HX7:(72*72)	72	72	97.5	3	94.5	67	67.5	25	67.5	25