

H7N-

SAINT WIEN DIGITAL COUNTER

H7N- P1/4

TYPE H7N- DIN 72x72, 72x144 PROGRAMMABLE DIGITAL COUNTER PANEL CUT 68x68,H68xW139mm

FEATURES

- 1 INCORPORATE AN EXCLUSIVE ONE-CHIP MICROPROCESSOR,
- 2 MAXIMUM PROGRAMMABLE 448 DIFFERENT SPECIFICATIONS. (2 COUNTING DIRECTIONS, 4 COUNTING SPEEDS, 3 OPERATION MODES, 7 COUNTING VERSIONS)
- 3 OUTSTANDING NOISE IMMUNITY WITH SCHMITT TRIGGER CIRCUIT APPLIED TO ALL INPUT TERMINALS FOR WIDE NOISE MARGIN AND NOISE SUPPRESSOR INSERTED IN LSI WHERE REQUIRED.
- 4 ALL INPUTS AND OUTPUTS ISOLATED WITH PHOTO ISOLATOR.
- 5 30 CPS SOFTWARE DEBOUNCE FOR CONTACT/SWITCH INPUT. 3000 CPS FOR VOLTAGE(SENSOR OR ENCODER) INPUT.
- 6 UP, DOWN COUNT AND REVERSIBLE VERSIONS AVAILABLE.
- 7 H OPERATION MODE FOR HIGH LIMIT OPERATION.
- 8 0.05~10S ADJUSTABLE FOR AUTO RESET CONTROL.
- 9 SINGLE OR DOUBLE STEP PRESET AVAILABLE.
- 10 LEADING ZERO BLANK AVAILABLE UPON REQUEST.
- 11 EEPROM BACKUP FOR MEMORY PROTECTION AVAILABLE.
- 12 MINUS SIGN OR BORROW INDICATION AVAILABLE
- 13 7 COUNTING VERSIONS PROVIDE PHASE DIFFERENCE IN, INDIVIDUAL IN, GATE IN & COMMAND IN.
- 14 CYCLE(x1) OR EDGE(x2, x4) COUNTING SELECTABLE FOR PHASE DIFFERENCE INPUT REVERSIBLE VERSIONS.
- 15 8 OPERATION MODES FOR AUTO/MAN RESET. OPERATION MODES OF CRPQH FOR AUTO RESET, NFK FOR MAN RESET.



AVAILABLE TYPES

Classification		Digital Counter				
Counting versions		UO, DOWN, REVERSIBLE COUNT				
Preset		Yes	Yes	Not		
Backup memory		Not	Yes	Yes		
Display		Yes	Yes	Yes		
Type Nos. of Digits & steps of preset S=Single Preset D=Double Preset	2D	S	H7N-2D	H7N-2DM		
		D	H7N-2D2D	H7N-2D2DM		
	3D	S	H7N-3D	H7N-3DM		
		D	H7N-3D3D	H7-3D3DM		
	4D	S	H7N-4D	H7N-4DM		H7N-4M
		D	H7N-4D2D*	H7N-4D2DM*		
		D	H7N-4D4D	H7N-4D4DM		
	5D	S	H7N-5D	H7N-5DM		H7N-5M
		D	H7N-5D2D*	H7N-5D2DM*		
		D	H7N-5D3D*	H7N-5D3DM*		
		D	H7N-5D5D-L	H7N-5D5DM-L		
	6D	S	H7N-6D	H7N-6DM		H7N-6M
		D	H7N-6D2D*	H7N-6D2DM*		
		D	H7N-6D6D-L	H7N-6D6DM-L		
	7D	S	H7N-7D	H7N-7DM		H7N-7M
		D	H7N-7D7D-L	H7N-7D7DM-L		
8D	S	H7N-8D-L	H7N-8DM-L	H7N-8M-L		
	D	H7N-8D8D-L	H7N-8D8DM-L			

Switch location at:

S is Section & Total/Bach counter same input

TS is Output of Section counter to Batch counter

T is Section & Total/batch counter separate input

Note: Above table, the types with mark of "*" are DOWN count preset, suffix "L" is case H72xW144mm

1. Standard: SINGLE COUNTER, 2~8 digits, single or double preset or no preset.

The preset code switch at right hand side is preset 2, left hand side is preset 1

The preset value should be always preset 1 greater than preset 2. The output of preset 2 is prior to preset 1

2. Special: TWIN COUNTER, 2~8 digits 2 counters (Section + Total/ Batch) combination

ORDER INFORMATIONS

*SINGLE COUNTER-STANDARD

H7N-6DM – M=BACKUP MEMORY

NO "M"=POWER OFF RESET

6 DIGITS, 2~7D OR 8D

TYPE

H7N-3D3DM — DOUBLE PRESET

WITH MEMORY

PRESET #2

PRESET #1

*TWIN COUNTER

H7-5DX3DM-L — L=H72xW148mm

WITH MEMOEY

SECTION PRESET 2~8D

TOTAL/BATCH,
PRESET 4~8D,
NO PRESET 4~8M

*INPUT SELECT FOR TWIN COUNTER

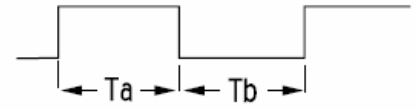
S=Section counter

T=Total/Batch counter

SPECIFICATIONS

1. Rate voltage: Nominal voltage 110/220VAC 50/60Hz (P1,P2=110V, P1,P2=220V)
2. Operating voltage: 85~115% of rated voltage
3. Power consumption: 3~5VA
4. Count & Gate & Reset input:
 - A.. Contact/SW input: Connect +12VDC by short or open to input
 - B. Solid state voltage input: [H]=6~30VDC,[L]=0~2VDC, Impedance=4.7Kohm
5. Maximum counting speeds of CP1, CP2 for input signal ON/OFF ratio=1:1
 - A. CP1 count in; CP2 gate in, CP2=[H]=inhibit.....3000 cps
 - B. CP2 count in; CP1 gate in, CP1=[L]=inhibit.....3000 cps
 - C. U/D A; CP1 count in. CP2 command, CP2 [H]=-, CP2[L]=+3000 cps
 - D. U/D B; Individual count in. CP1 in=+, CP2 in=-.....3000 cps
 - E. U/D C; Phase difference in, cycle count x1.....1000 cps
 - F. U/D D; Phase difference in, edge count x2.....1000 cps
 - G. U/D E; Phase difference in, edge count x4.....750 cps
6. Reset system:
 - A. Power off reset: mini off time 0.5S. Reset time following signal application 0.5S
 - B. External & MANUAL reset: reset time 0.5S. Reset time following signal application 0.5S
 - C. AUTOMATIC reset: internal reset by each operation mode C, R, K, P, Q, H.
7. Control output:
 - A. Single preset (72x72, 72x144): Contact output SPDTx1 & voltage output (VOUT+12V)
 - B. Double preset (72x72): Contact output SPST-NOx2 (P4,5=#1, P6,12=#2)
 - C. Double preset (72x144): Contact output SPDTx2 & voltage output (VOUT+12V)

Contact rating:3A250VAC P.F.=1.0
Solid state voltage output Vout=12VDC, output impedance 4.7Kohm
8. Power source for external sensor: 12VDC+-10%, 50mA

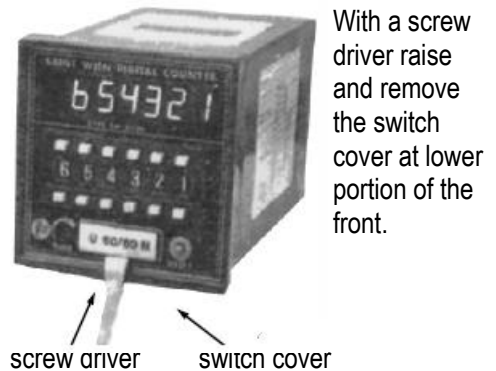


Input signal $T_a = T_b \geq T_{a \min} = T_{b \min}$

PROGRAMMING OF SPECIFICATIONS DIP SW/PIN POSITION: ● = UP↑(0), ○ = DOWN↓(1)

Specifications↓	DIP SW No.→	1	2	3	4	5	6	7	8	9
Counting direction	UP	○								
	DOWN	●								
Maximum Counting Speed cps CP1/CP2	30/30		●	●						
	3K/30		○	●						
	3K/3K		○	○						
	30/3K		●	○						
Operation modes	N-Latch				○	○	○			
	F-Overflow				●	○	○			
	C-Recycle				○	●	○			
	R-Recycle				●	●	○			
	K-Overflow				○	○	●			
	P-Recycle				●	○	●			
	Q-Recycle				○	●	●			
	H-High limit				●	●	●			
Counting versions	CP1 in, CP2 gate							○	○	●
	CP2 in, CP1 gate							○	●	○
	U/D A, CP2 H=- L=+							○	●	●
	U/D B, Individual							○	○	○
	U/D C, Phase in x1							●	○	○
	U/D B, Phase in x2							●	●	○
	U/D C, Phase in x4							●	○	●

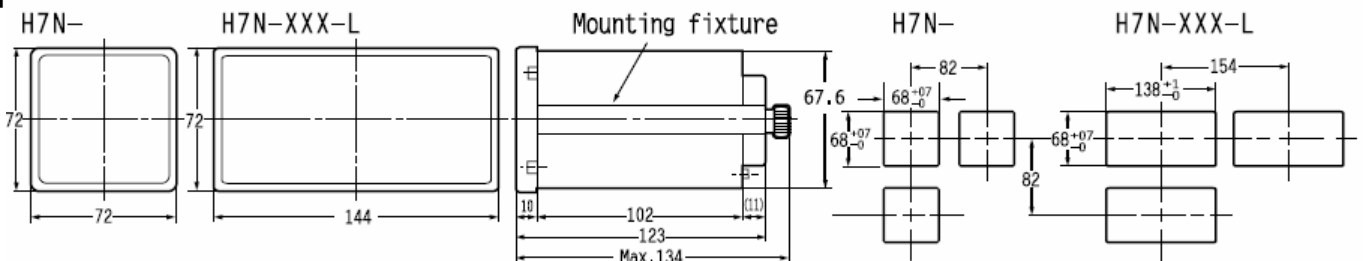
Step 1: Removal of switch cover
Remove the SW cover in the Manner shown in the photograph.

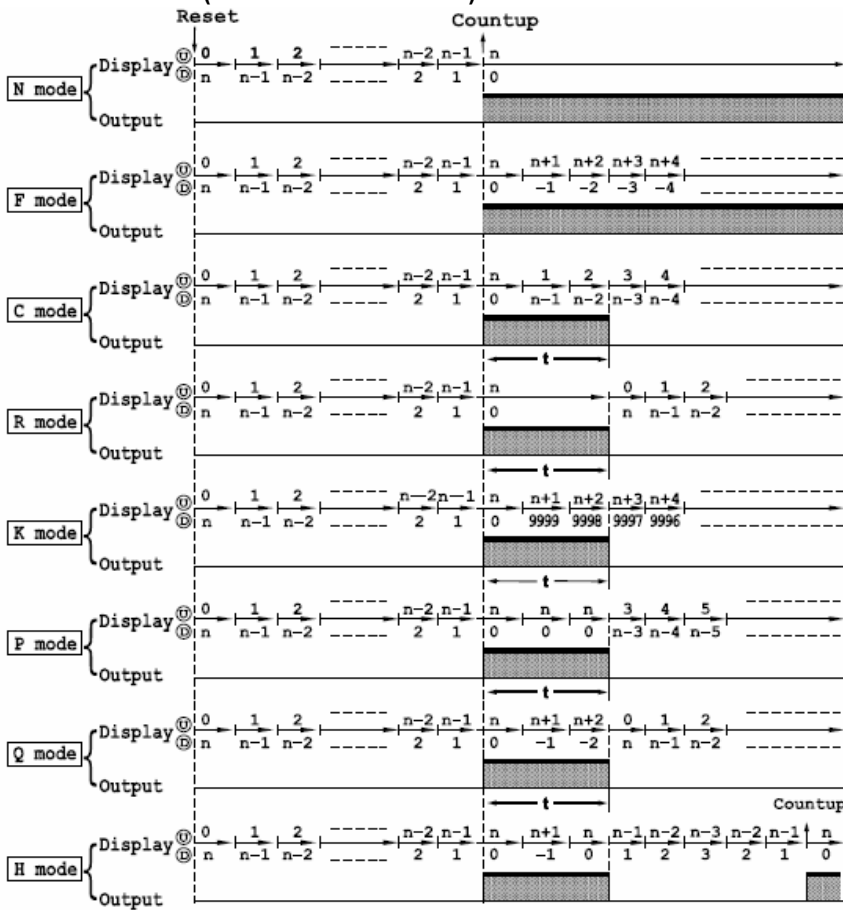


Step 2: Selection of specifications.
By changing the respective pin's position of the DIP SW inside the cover. Various functional specification can be selected as shown in left table.

Step 3: Indication of specification items.
Select the appropriate rating label
Note: Please manual reset after changing the pin's position, otherwise will work on previous functions.

DIMENSIONS(mm)





N: Display & O/P latched while the Counter is up

F: Display overflow but O/P is latched while the counter is up

C: Display & counter reset to count, but O/P latched while counter is up. O/P reset after timing [t].

R: Display, counter & O/P is latched while counter is up. But all reset to count after timing [t].

K: Display & counter overflow, O/P is latched while counter is up. O/P reset after timing [t].

P: Display & O/P latched, counter reset to count while is up. O/P reset, display update after [t].

Q: Display & counter overflow, O/P is latched while counter is up. But all reset after timing [t].

H: Display & counter overflow, O/P is latched while counter equal or greater than set [n]. But O/P reset when counter smaller than set [n]

Note:

*Time chart is for O/P 1 of single counter. O/P 2 will be reset slave to O/P 1.

*Above chart for counter with minus [-] sign, except [K mode] is borrow.

U: Count up, from 0 to set value [n].

D: Count down, from set value [n] to 0.

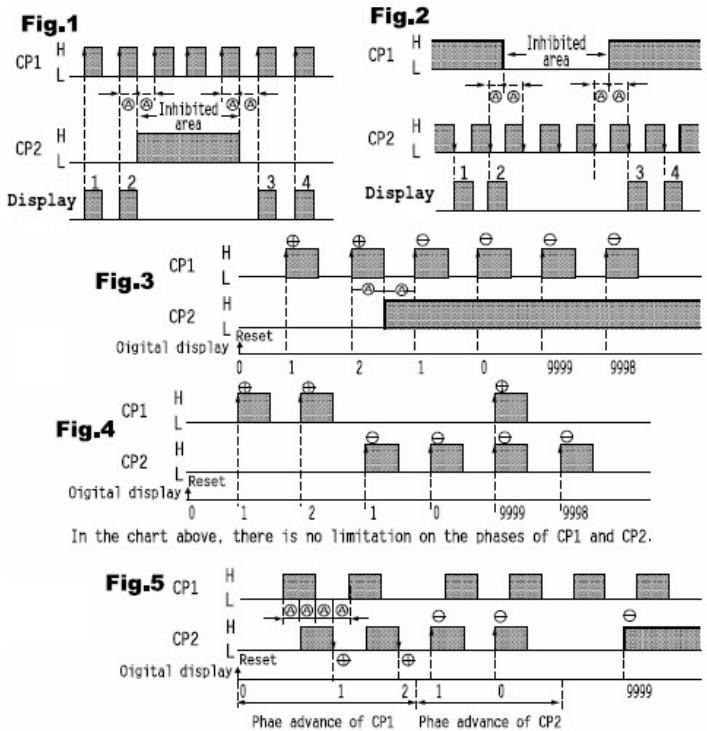
[n]: Set value

[t]: Output holding time (one shot time) of 0.05S to 5S adjustable.

COUNTING VERSIONS

[DESCRIPTION IS FOR UP COUNT PRESET DIP SW No.1=1 ↓ (○DOWN)]

1. CP1 IN, CP2 GATE [H]=INHIBIT...**Fig.1**
CP1 count in, counter stops counting and hold display while [H] applying to CP2.
2. CP2 IN, CP1 GATE [L]=INHIBIT...**Fig.2**
CP2 count in, counter counts only the CP1 is [H], stops counting while CP1 is [L].
3. U/D A, CP2 command. H]=-, [L]=+...**Fig.3**
CP1 is count in, CP2 commands the counting Direction. CP2:[H] count down, [L] count up.
4. U/D B, individual input. CP1=+, CP2=-...**Fig.4**
CP1 input cause increment.
CP2 input cause decrement.
5. U/D C, PHASE DIFFERENCE INPUTx1...**Fig.5**
CP1, CP2 be phase difference of 90. CP1, CP2 completes 1 cycle cause 1 increment or 1 decrement



In the chart above, there is no limitation on the phases of CP1 and CP2.

- 6. U/D D, PHASE DIFFERENCE INPUTx2...Fig. 6
CP1, CP2 be phase difference of 90. CP1, CP2 completes 1 cycle cause 2 increment or decrement
- 7. U/D E, PHASE DIFFERENCE INPUTx4...Fig. 7
CP1, CP2 be phase difference of 90. CP1, CP2 completes 1 cycle cause 4 increment or decrement

Fig.6

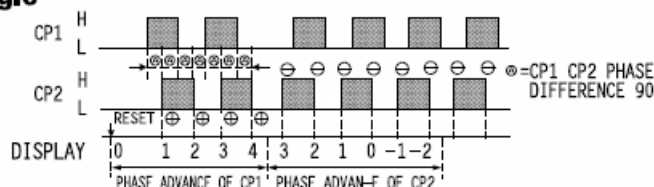
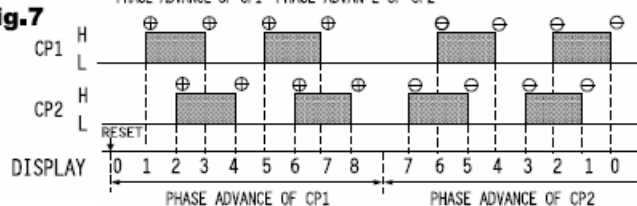


Fig.7



CONNECTIONS

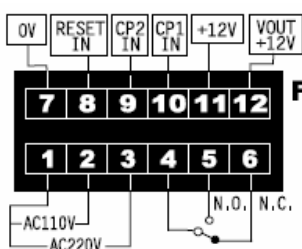


Fig.2

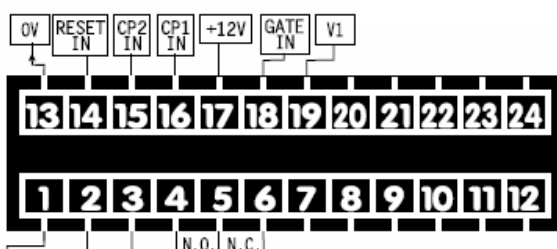


Fig.3

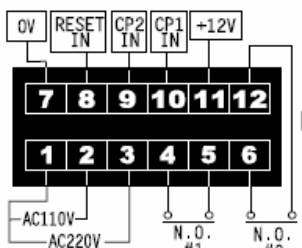


Fig.4

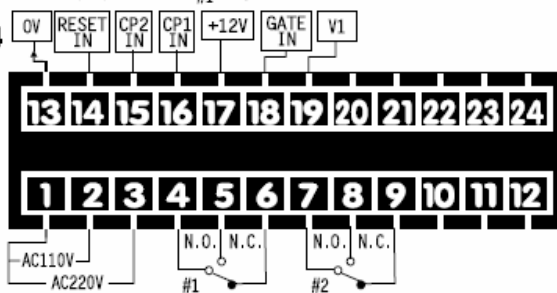


Fig.1 & Fig.2 for single preset
Fig.3 & Fig.4 for double preset
*Use shield wires or Independent metal Conduit & keep the Wiring as short as possible.

*Connect a resistor of 1K ohm 1/2W between each input pin & OV.

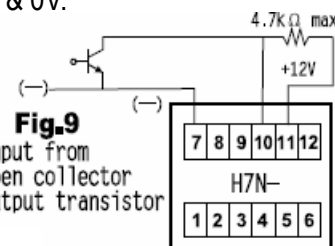


Fig.9
Input from open collector output transistor

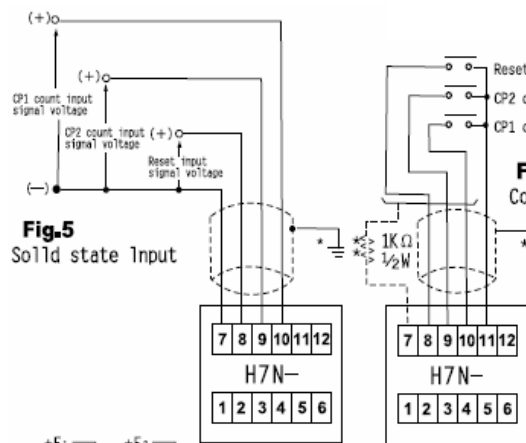


Fig.5
Solid state Input

Fig.6
Contact Input

Fig.10
Simultaneous application of contact input signals

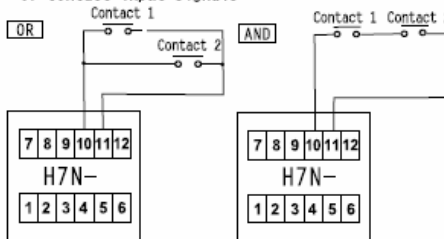


Fig.11 Simultaneous application of input signals from one solid-state input signal terminal to multiple counters

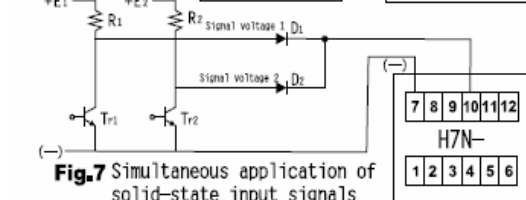
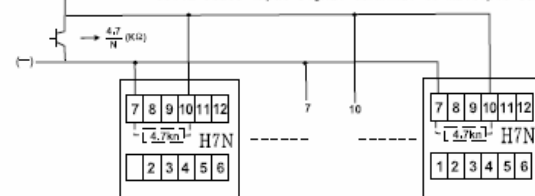


Fig.7 Simultaneous application of solid-state input signals

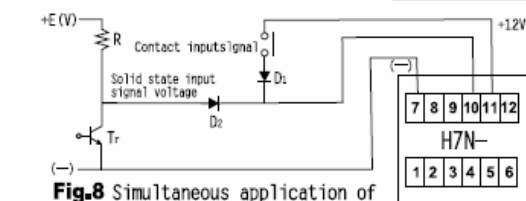


Fig.8 Simultaneous application of contact and solid-state input signals

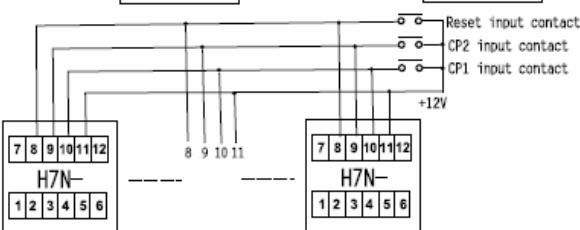


Fig.12 Simultaneous application of input signals from one contact to multiple counters