Multi-Function

MH Series Micro Processor UP/Down Counter

INSTRUCTION MANUAL

MHC01-E1

Carefully read all the instructions in this manual. Please place this manual in a convenient location for easy reference.

◇ Multi-Function and General Date

Coutning method: Two phases UP/Down, Single phase UP/Down
Multiplier range: 0.001-99.99
Response frequency: 0.1HZ-5KHZ
Output control settable: N/R/C/A
Output reset time tettable: 0.01-99.99 s
AUX DC output: 12V/100mA Max
Input method: NPN Signal phase or tow phase selectable
Counting method:: Increasing or decreasing counting selectable
Memory: EEPROM 10 years
ESD strength: over8KV
Dielectric strength: over2.5KV/60s（Between power and each other terminal
Isolation strength: over100MΩ /500VDC（Between power and each other terminal

1. PRODUCT CHECK

MODEL

MH □□□ - □
(1) (2) (3) (4)

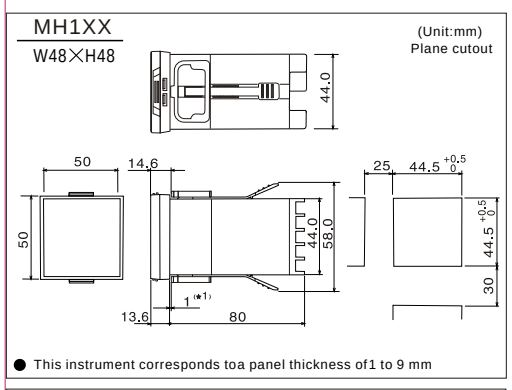
(1) Outline（mm）
1: W48×H48　5: W96×H48　7: W72×H72　9: W96×H96

(2) LED display digits:
4: LED 4 digits　6: LED 6 digits

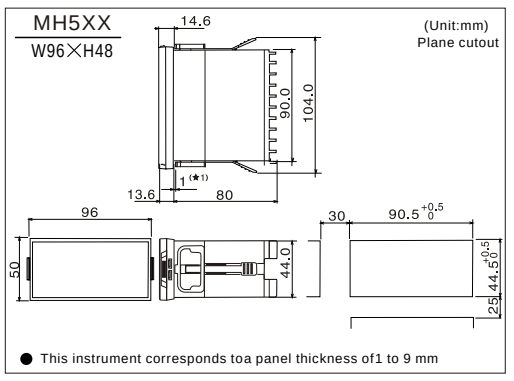
(3) Preset:
1: Single preset　2: Duet preset

(4) Power
No mark: 85-265VAC　D: 24VDC　E: 24VAC

2. DIMENSIONS



● This instrument corresponds to a panel thickness of 1 to 9 mm



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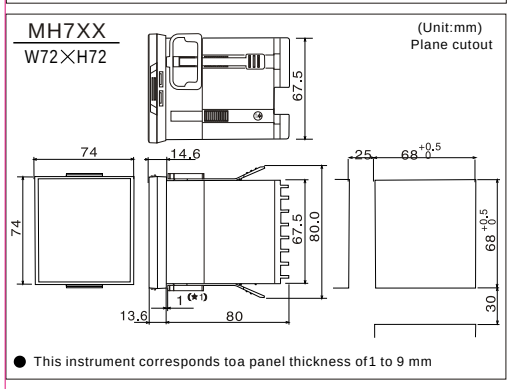

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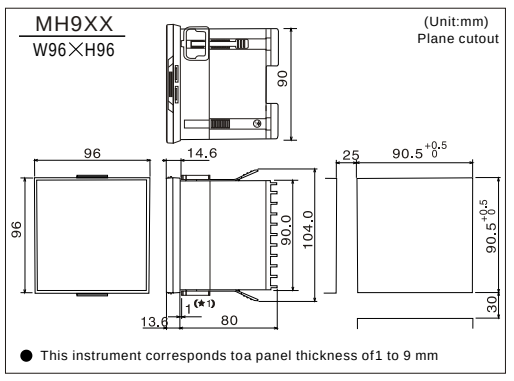
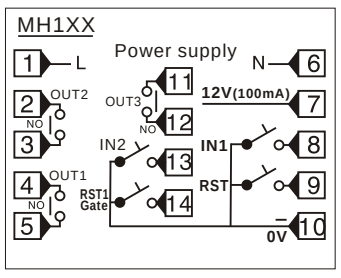
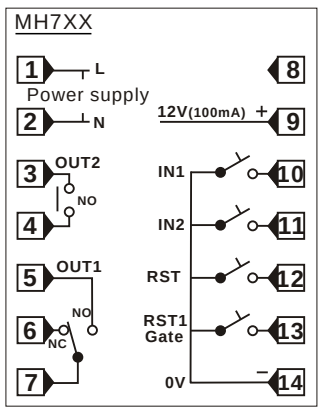
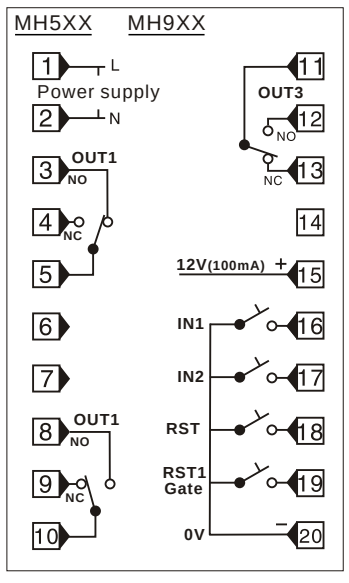


● This instrument corresponds to a panel thickness of 1 to 9 mm

3. WIRING





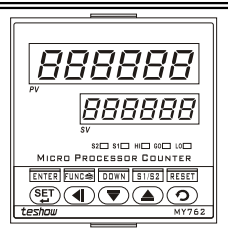


Power supply voltage:
AC85~265V
(Frequency：50/60Hz，Rating：100~240V Ac)
22 to 26 VAC
(Frequency：50/60Hz，Rating：24V AC)
22 to 26V DC （Rating：24V Dc）

Power consumption:
5VA max (at 24V AC)　160mA max (at 24V DC)
7VA max (at 100V AC)　10VA max (at 240VAC)

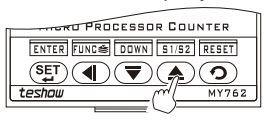
Relay output rated:
Relay contact output: 250V AC,3A(Resistive load)

4. PARTS DESCRIPTION AND SETTING SET VALUE



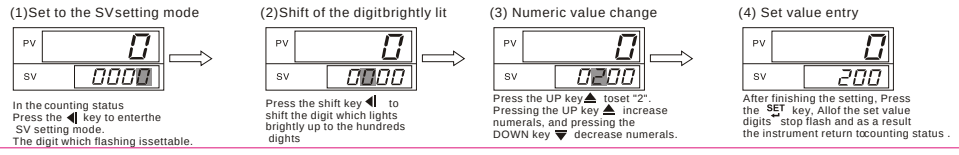
PV: Measured value (PV)
SV: Set value(SV)
S1, S2: Indication SV1 or SV2
HI, GO, LO: Output lamps
SET :Enter key and output method menu key
FUNC :Shift key and function menu key
DOWN :Down key
S1/S2 :Up key and preset method key
RESET :Manual reset key

4.1 Preset method (Only for duet preset type)



In counting status please press S1/S2 key to select the SV1(S1) or SV2(S2) preset value. Lamp S1 or S2 will indicate SV1 or SV2. Please do not set SV1 larger than SV2.

4.2 Setting set value(SV)　Example: Following is an example of set value(SV) to 200



5.MENU SETTING

5.1Setting of function

Function	Symbol	Range	Description
Counting Status	PV 888888 / SV 888888	-99999 to 999999	-99999 to 999999 or -999 to 9999
Press FUNC ↓3 s			
Lock Setting	PV LcK / SV 0	0~4	=0, Unlock =1, Only SV settable =2, Only SV settable Without reset function key =3, SV and Function settable =4, All unsettable
Press SET			
Response time	PV rt / SV 0.1	0.1~999.9	Response frequency=500/ rt (HZ)
Press SET			
Mode setting	PV nod / SV 888888	0~1	Only for duet preset type. =0: High limit=SV2, Low limit=SV1 =1: High limit=SV2, Low limit=(SV2-SV1)
Press SET			

Function	Symbol	Range	Description
Counting Status	PV 888888 / SV 888888	-99999 to 999999	-99999 to 999999 or -999 to 9999
Press SET			
Multiplier	PV nuL / SV 1.000	0.001~ 99.999	PV value =pulse number ×nuL
Press SET			
Decimal point	PV dP / SV 0	0~3	=0: No decimal point =1: 1st decimal point =2: 2nd decimal point =3: 3rd decimal point
Press SET			
UP/DOWN setting	PV ud / SV U	U or d	=U: Reset counter PV=0 =d: Reset counter PV=SV or SV2
Press SET			
Counting setting	PV Cnt / SV 0	0~1	Cnt=0: Single phase (IN1 adding, IN2 decreasing) Cnt=1:Two phase (IN1/IN2 phase difference 90°)

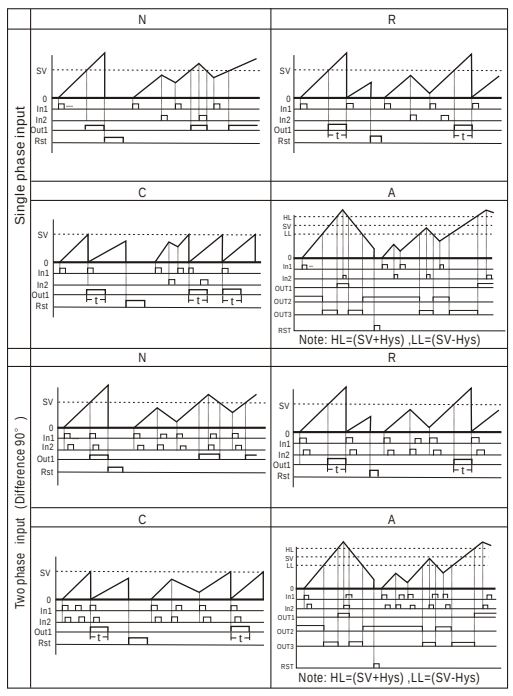
5.2 Setting of output control method

Function	Symbol	Description
Counting Status	PV 888888 / SV 888888	-99999 to 999999 or -999 to 9999
Press SET ↓3 s		
Control method setting	PV Con / SV n	=n :Manual reset =r : Auto reset(PV & Output reset sychronously) =C: Auto reset (PVreset instantaneously) =A: Hi/Lo comparing（manual reset） PV＜S1, Out2 action (LO) S1≤PV≤S2, Out3 action(GO) PV＞S2, Out1 action (HI)
Press SET		

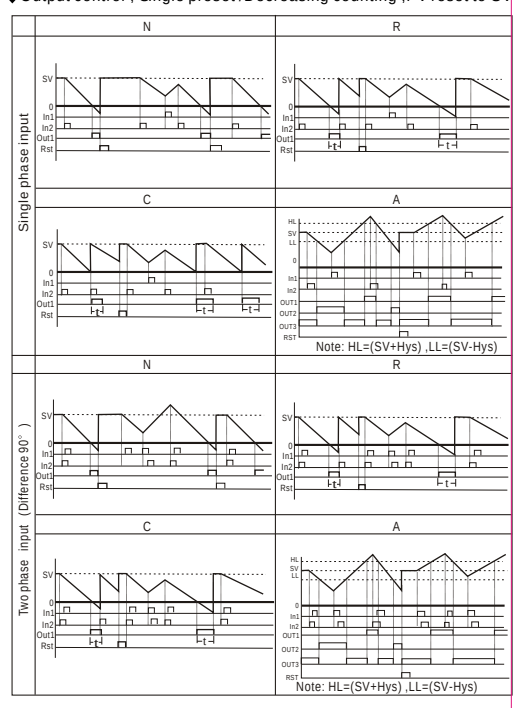
Function	Symbol	Description
Counting Status	PV 888888 / SV 888888	-99999 to 999999 or -999 to 9999
Press SET		
Hysteresis setting	PV HYS / SV 5	Only for single preset type Appeared when Con=A PV＞(SV+HYS), OUT2 action (HI) PV＜(SV-HYS), OUT1 action(Lo)
Press SET		
Reset time setting	PV t 1 / SV 0.50	Range=0.01~99.99 second Disappeared when Con=A

6.OUTPUT CONTROL DESCRIPTION

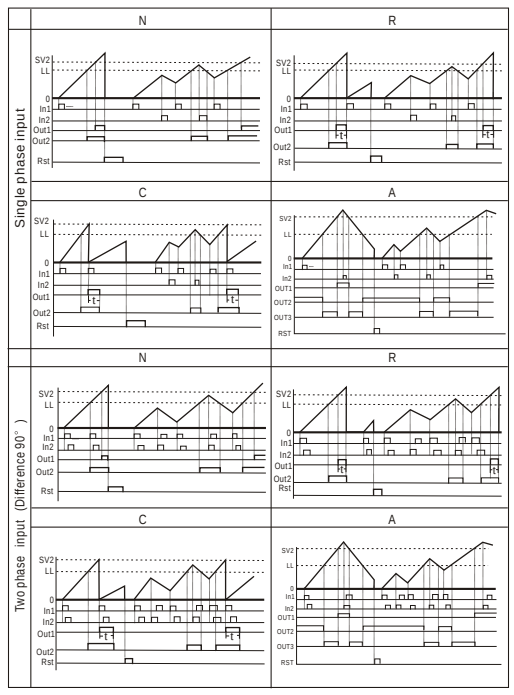
◆Output control , Single preset /Increasing counting ,PV reset to 0



◆Output control , Single preset /Decreasing counting ,PV reset to SV

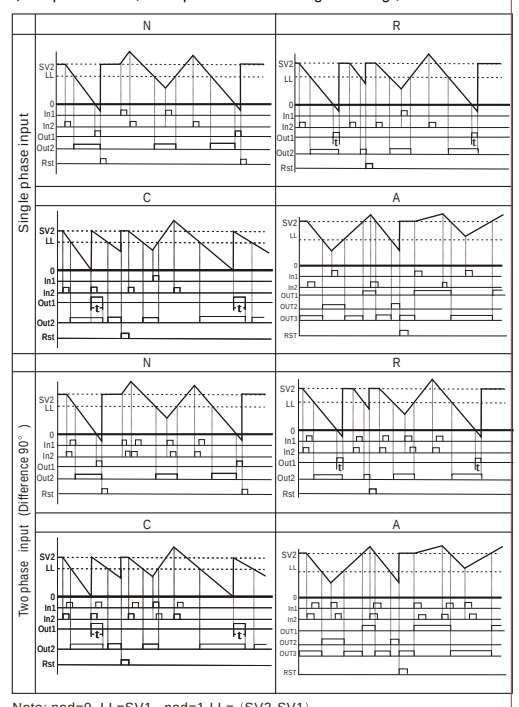


◆Output control , Duet preset /Increasing counting ,PV reset to 0



Note: nod=0, LL=SV1, nod=1,LL=（SV2-SV1）

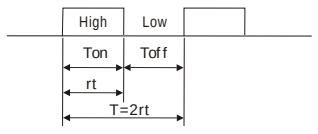
◆Output control , Duet preset /Decreasing counting ,PV reset to SV



Note: nod=0, LL=SV1, nod=1,LL=（SV2-SV1）

7.SPECIAL ILLUSTRATION

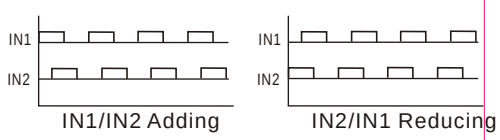
■ 7.1 Response time rt (rt),(Unit:ms)



T (cycle time) =Ton+Toff (Ton=Toff)
T (cycle time) =2rt/1000=rt/500(second)
F (response frequency) =1/T=500/ rt (HZ)
rt=500/F
Ex.: Input frequency 1000HZ then rt=500/1000=0.5
Input frequency 500HZ then rt=500/500=1.0

■ 7.2 Counting method

Single input: IN1=Adding, IN2= Reducing
Two phase input: IN1/IN2=Adding, IN2/IN1=Reducing
IN1 & IN2 phase difference =90 °



■ 7.3 External reset

Increasing counting (U): The counting value (PV) is reset to 0
Decreasing counting (d): The counting value (PV) is reset to SV or SV2

■ 7.4 External gate

To inhibit the counter to count but does not reset the counting value.

■ 7.5 Duet preset method

Duet preset type: In counting status ,please press S1/S2 key to select the SV1(S1) or SV2(S2) preset value. Please do not set SV1 larger than SV2.

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