

# M4NS/ M4YS

## DIN W48×H24mm, W72×H36mm Loop powered digital scaling meter

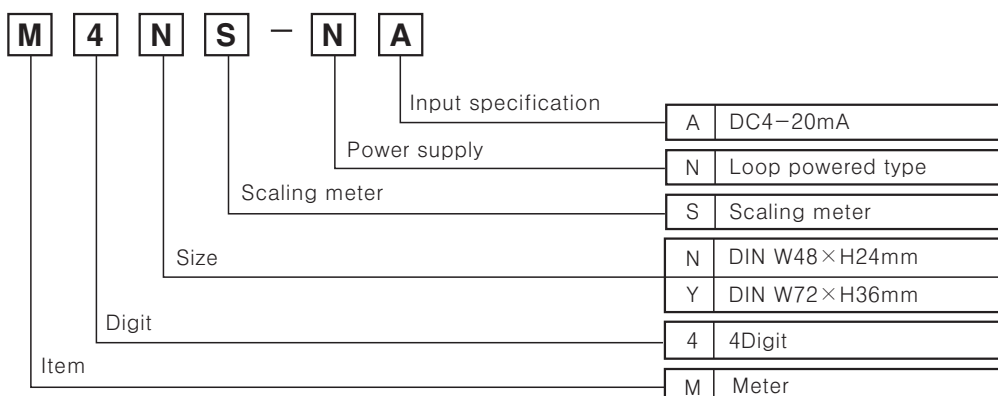
### ■ Features

- Loop powered type
- Measurement input : DC4–20mA
- Max. display range : –1999~9999
- Prescale function
- Decimal point change function
- Hi / Low limit input correction
- Display peak value monitoring function
- Changeable delay time of monitoring peak value
- Display cycle change function  
(Selectable 0.5sec/1sec/2sec/3sec/4sec/5sec)
- Error display function



**⚠ Please read "Caution for your safety" in operation manual before using.**

### ■ Ordering information



### ■ Specifications

Model		M4NS-NA	M4YS-NA
Measurement input		DC4–20mA	
Power supply		Loop powered type	
Power consumption		—	
Display method		7 Segment LED Display (4digit)	
Character height		9mm	14.2mm
Display accuracy		0.3% full scale of ±1Digit	
Display cycle		Selectable 0.5sec/1sec/2sec/3sec/4sec/5sec	
Resolution		12,000 resolution	
Max. display range		–1999 ~ 9999	
Setting type		Front switches	
Max. allowable input		150% of measurement input	
Self–diagnosis function		Error display function(HHHH/LLLL)	
Insulation resistance		Min. 100MΩ (500VDC mega)	
Dielectric strength		2000VAC 50/60Hz for 1minute	
Vibration	Mechanical	0.75mm amplitude at frequency of –10 ~ 55Hz in each of X, Y, Z directions for 1hour	
	Malfunction	0.5mm amplitude at frequency of –10 ~ 55Hz in each of X, Y, Z directions for 10minute	
Shock	Mechanical	300m/s <sup>2</sup> (30G) in X, Y, Z directions for 3 times	
	Malfunction	100m/s <sup>2</sup> (10G) in X, Y, Z directions for 3 times	
Ambient temperature		–10 ~ 50°C (at non–freezing status)	
Storage temperature		–25 ~ 66°C (at non–freezing status)	
Ambient humidity		35~85%RH	
Unit weight		Approx. 46g	Approx. 88g

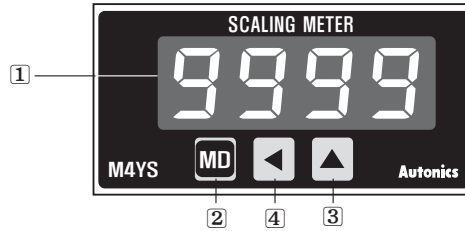
# Scaling Meter

## Front panel identification

●M4NS-NA



●M4YS-NA



① Display value, Parameter, Error display

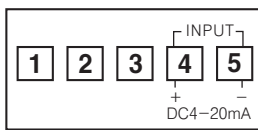
② **MD** Key : When advances to Parameter group, return to RUN mode, move to next parameter after completing to set Parameter

③ **▲** (Up) key : When advances to the status of Parameter setting

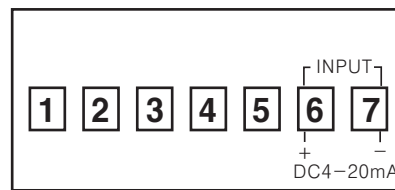
④ **◀** (Move) key : When advances to the status of Parameter setting and moving digit.

## Connections

●M4NS-NA

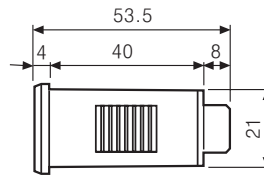
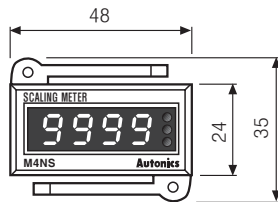
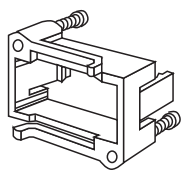


●M4YS-NA

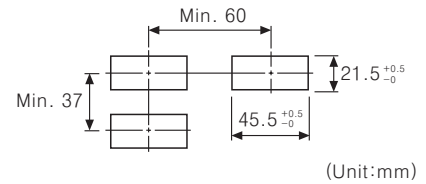


## Dimensions

●M4NS-NA

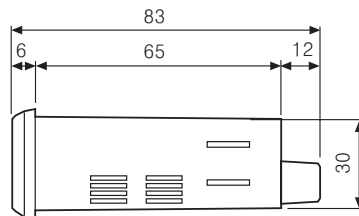
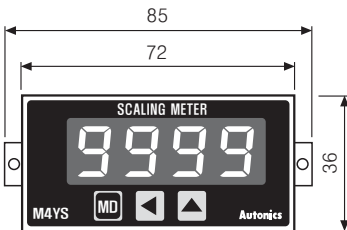


●Panel cut-out

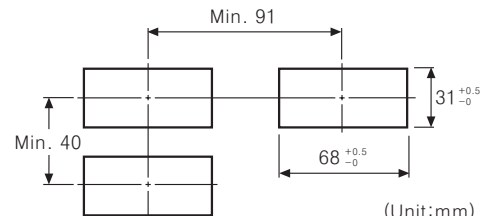


(Unit:mm)

●M4YS-NA



●Panel cut-out



(Unit:mm)

## Parameter

Display	Function	Setting range
<b>L-SC</b>	Low scale Low limit display value for 4mA input	-1.999 ~ 9.999 -19.99 ~ 99.99
<b>H-SC</b>	High scale Hi limit display value for 20mA input	-199.9 ~ 999.9 -1999 ~ 9999
<b>dot</b>	Decimal point Set Decimal point position	0000, 000.0 00.00, 0.000
<b>lnb.L</b>	Correct the Low-limit value of display value(%)	-100 ~ 100
<b>lnb.H</b>	Correct the High-limit value of display value(%)	0.900 ~ 1.100
<b>PEL.t</b>	Peak time See the peak value monitoring delay time	0 ~ 30sec
<b>dis.t</b>	Display period Selectable sampling period(sec)	Selectable 0.5/1.0/ 2.0/3.0/4.0/5.0sec
<b>E.PCt</b>	Error % Display the measurement input is out of input range	E.PCt 0, E.PCt 1, E.PCt 2, E.PCt 3, E.PCt 4
<b>LoC</b>	Lock Set the lock function	Selectable ON, OFF

## Factory default setting

Parameter	Parameter display	Factory default
Low limit display value for 4mA input	<b>L-SC</b>	<b>400</b>
Hi limit display value for 20mA input	<b>H-SC</b>	<b>2000</b>
Set Dot position	<b>dot</b>	<b>0000</b>
Correction of Low limit value input	<b>lnb.L</b>	<b>0000</b>
Correction of Hi limit value input	<b>lnb.H</b>	<b>1.000</b>
Peak value monitoring delay time	<b>PEL.t</b>	<b>015</b>
Display cycle	<b>dis.t</b>	<b>0.5</b>
Set % of HHHH/LLLL display range	<b>E.PCt</b>	<b>3</b>
Lock setting	<b>LoC</b>	<b>off</b>

(A) Counter

(B) Timer

(C) Temp. controller

(D) Power controller

(E) Panel meter

(F) Tacho/Speed/Pulse meter

(G) Display unit

(H) Sensor controller

(I) Switching power supply

(J) Proximity sensor

(K) Photo electric sensor

(L) Pressure sensor

(M) Rotary encoder

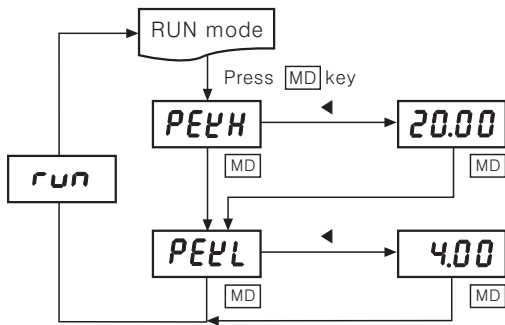
(N) Stepping motor & Driver & Controller

(O) Graphic panel

(P) Production stoppage models & replacement

# M4NS/ M4YS

## Parameter group 0 (Monitoring mode)

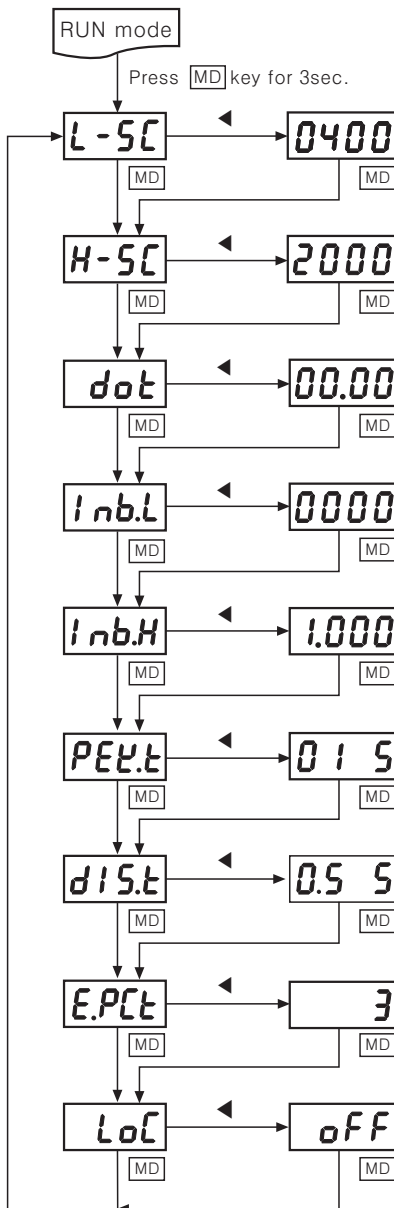


Press ◀ Key once, it displays High peak value.  
Press ◀ Key one more time, the peak value will be initialized.

Press ◀ Key once, it displays Low peak value.  
Press ◀ Key one more time, the peak value will be initialized.

※When this function is not used, please set the setting value of **PEEL** as **00 5** in parameter group 1.

## Parameter group 1



Display the Low limit value for 4mA. Setting range is -1999~9999.  
◀ key : Move the setting digit, ▶ key : Change the setting value

Display the High limit value for 4mA. Setting range is -1999~9999.  
◀ key : Move the setting digit, ▶ key : Change the setting value

Change the Dot position by ◀ or ▶ key.  
Selectable 00.00 ↔ 0.000 ↔ 0000 ↔ 000.0

Change the Low limit corrected value. Setting range is -100 ~ +100.  
◀ key : Move the setting digit, ▶ key : Change the corrected value

Change the High limit corrected value. Setting range is -0.900 ~ 1.100.  
◀ key : Move the setting digit, ▶ key : Change the corrected value

Set Peak value monitoring delay time. Setting range is 0 ~ 30sec.  
▶ key : Setting the delay time, ◀ key : Set "00" sec.

Set the delay cycle by ◀ or ▶ key  
Selectable 05 ↔ 1.0 ↔ 2.0 ↔ 3.0 ↔ 4.0 ↔ 5.0 sec

Select the number of error display by ◀ or ▶ key  
Selectable 3 ↔ 4 ↔ 0 ↔ 1 ↔ 2 (Refer to E-6 for Error display)

Key lock setting by ◀ or ▶ key  
Selectable off ↔ on

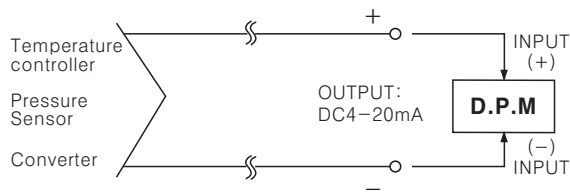
off : Able to change or set Parameter.  
on : Disable to change but enable to check the setting value in Parameter group.

※Press **MD** key to complete the setting and move to next Parameter in status of changing setting value.

※Press **MD** key is pressed for 3 sec. to move to RUN mode after displaying **run**.

※If any key is untouched for 60sec., it will return to RUN mode.

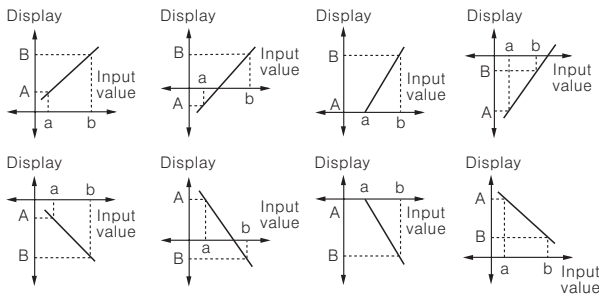
## Application of connections



## Functions

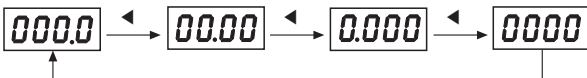
### Prescale function [ L-SC / H-SC Mode ]

This function is to display the value setting certain Hi/Low limit value against DC4-20mA input. For example if set a=DC4mA, b=DC20mA and A, B as display value, it will be displayed a=A, b=B.



### Decimal point setting function [ dot Mode ]

This function is to set the decimal point position of display value (Set in Parameter setting group)



Able to use ◀ (Shift) or ▶ (Up) for moving decimal point.

### Correction function [ I nb.H / I nb.L Mode ]

This function is to adjust the error of display value after calculating scale value for measuring input and also correct the input error of sensor etc.

**I nb.L** : -100 to 100 [Adjust deviation of low value]

**I nb.H** : 0.900 to 1.100 [Correct gradient (%) of high value]

Ex) When display value is 0.0 to 500.0 against

※ Deviation adjustment of low value

If the display value is "1.2" for 4mA input, set -12 (Ignore the decimal point) as **I nb.L** value to display "0.0". It is able to remove offset of low display value.

※ Deviation adjustment of high value

When completed above low value setting then apply 20mA, if the display value is "500.5", the correction value will be  $5005/5000=0.999$ , set 0.999 as **I nb.H** value then enable to correct high value is  $50005 \times 0.999=5000$ .

(It is also ignore the decimal point.)

### Display cycle delay function

It is difficult to display when the measuring input value is fluctuating. In this case it is able to make display value stable by delaying display cycle.

Display cycle can be changed in **DISL** mode of Parameter 2 (Selectable 0.5s/1.0s/2.0s/3.0s/4.0s/5.0s). If select **5.0**, it will be the measuring input value on an average for 5sec., then display it every 5sec.

### Error display function [ E.P.Ct Mode ]

● Type of error sign

Error code	Error description
<b>E.P.Ct 0</b>	<b>LLLL / HHHH</b> are displayed when it is over <b>0%</b> out DC4-20mA range
<b>E.P.Ct 1</b>	<b>LLLL / HHHH</b> are displayed when it is over <b>1%</b> out DC4-20mA range
<b>E.P.Ct 2</b>	<b>LLLL / HHHH</b> are displayed when it is over <b>2%</b> out DC4-20mA range
<b>E.P.Ct 3</b>	<b>LLLL / HHHH</b> are displayed when it is over <b>3%</b> out DC4-20mA range
<b>E.P.Ct 4</b>	<b>L-SC / H-SC</b> are displayed always when it is out of DC4-20mA range

Note) **LLLL / HHHH** will not be displayed when the differences are under 50 between **L-SC** and **H-SC**.

● Error display

① In case of selection "**E.P.Ct 3**"

It is the case that input current is lower or higher than 3% in DC4-20mA, therefore, the deviation value of current will be the scale value of measurement input range (16mA)  $\times$  3% = 0.48mA.

$\therefore$  When input current is lower than 4mA-0.48mA = 3.52mA, **LLLL** is displayed.

On the contrast, when input current is 20mA + 0.48mA = 20.48mA, **HHHH** is displayed.

② When it is beyond limit High scale (**H-SC**) or limit Low scale (**L-SC**), the **HHHH** and **LLLL** signals are displayed.

● Cancellation of Error display

**LLLL** and **HHHH** are displayed when input is out of measuring range, therefore, it will be disappeared automatically when input returns to measuring range.

### Display peak value monitoring function

#### [ PEVH / PEVL Mode ]

This function is to monitor Max/Min value of display and display that data on **PEVH** mode and **PEVL** mode of parameter setting group.

For Max. value monitoring, set delay time at **PEVL** mode in order to initial overcurrent.

Delay time range is 0~30sec, and start monitoring after setting time.

(A) Counter

(B) Timer

(C) Temp. controller

(D) Power controller

(E) Panel meter

(F) Tacho/Speed/Pulse meter

(G) Display unit

(H) Sensor controller

(I) Switching power supply

(J) Proximity sensor

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