

M4NS/ M4YS

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

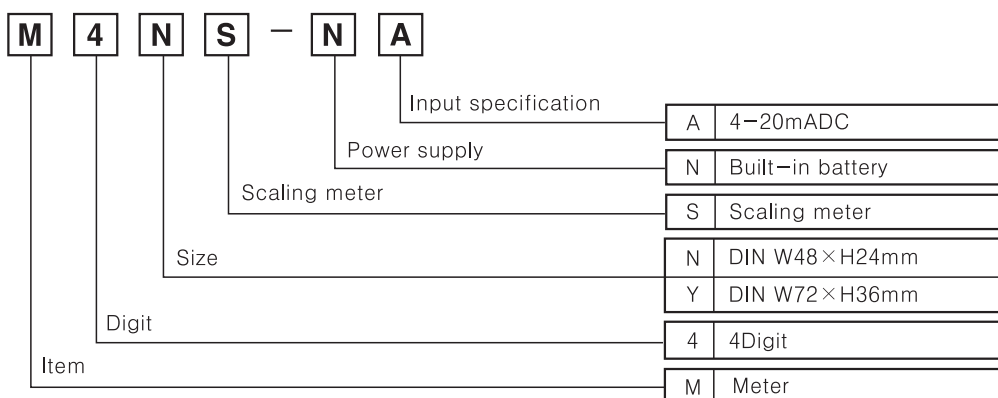
■ Features

- Loop powered type
- Measurement input : 4–20mADC
- 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	4–20mADC	
Power supply	Built-in battery	
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 S/W key	
Max. allowable input	150% of measurement input	
Self-diagnosis function	Error display function(HHHH/LLLL)	
Insulation resistance	Min. 100MΩ (500VDC)	
Dielectric strength	2000VAC 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 ² (30G) in X, Y, Z directions for 3 times
	Malfunction	100m/s ² (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



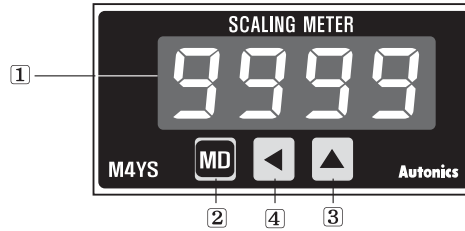
① Display value, Parameter, Error display

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

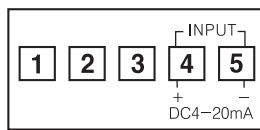
④ **◀** (Move) key : When advances to the status of Parameter setting and moving digit.

●M4YS-NA

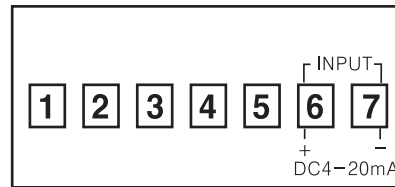


Connections

●M4NS-NA

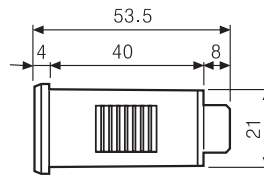
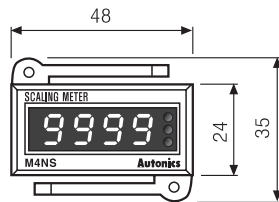
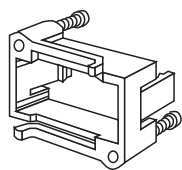


●M4YS-NA

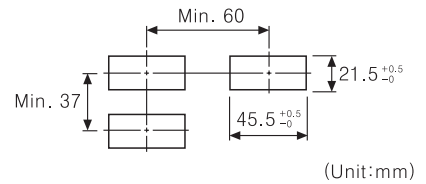


Dimensions

●M4NS-NA

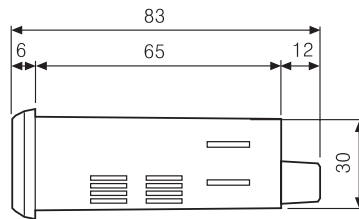
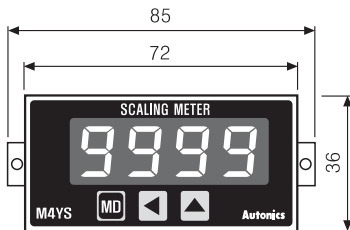


●Panel cut-out

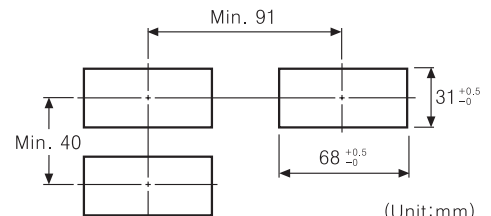


(Unit:mm)

●M4YS-NA



●Panel cut-out



(Unit:mm)

Parameter

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

Factory default setting

Parameter	Parameter display	Factory default
Low limit display value for 4mA input	L-SC	400
Hi limit display value for 20mA input	H-SC	2000
Set Dot position	dot	0000
Correction of Low limit value input	lnb.L	0000
Correction of Hi limit value input	lnb.H	1.000
Peak value monitoring delay time	PEL.t	015
Display cycle	dis.t	0.55
Set % of HHHH/LLLL display range	E.PC.t	3
Lock setting	LoC	oFF

(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

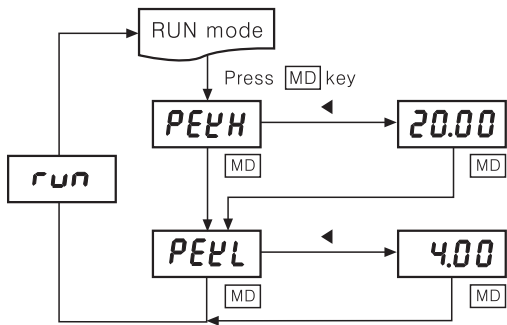
(N) Stepping motor & Driver & Controller

(O) Graphic panel

(P) Production stoppage models & replacement

M4NS/ M4YS

Parameter group 0(Monitoring mode)

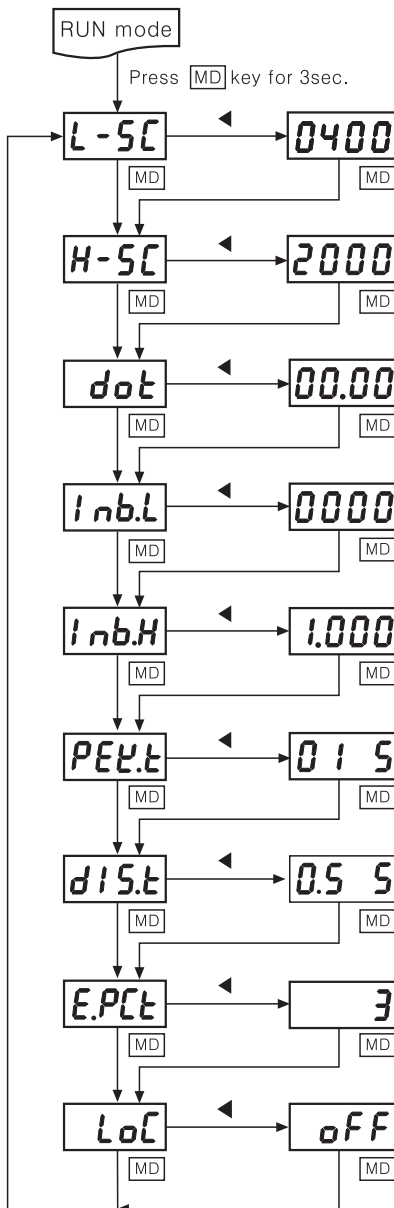


- ◀ If the key is pressed once, it displays High peak value.
- ◀ If the key is pressed one more time, the peak value will be initialized.

- ◀ If the key is pressed once, it displays Low peak value.
- ◀ If the key is pressed 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 $00.00 \xleftrightarrow{\Delta/\leftarrow} 0.000 \xleftrightarrow{\Delta/\leftarrow} 0000 \xleftrightarrow{\Delta/\leftarrow} 000.0$

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 $05 \xleftrightarrow{\Delta/\leftarrow} 1.0 \xleftrightarrow{\Delta/\leftarrow} 2.0 \xleftrightarrow{\Delta/\leftarrow} 3.0 \xleftrightarrow{\Delta/\leftarrow} 4.0 \xleftrightarrow{\Delta/\leftarrow} 5.0$ sec

Select the number of error display by ▲ or ◀ key
Selectable $3 \xleftrightarrow{\Delta/\leftarrow} 4 \xleftrightarrow{\Delta/\leftarrow} 0 \xleftrightarrow{\Delta/\leftarrow} 1 \xleftrightarrow{\Delta/\leftarrow} 2$ (Refer to E-6 for Error display)

Key lock setting by ▲ or ◀ key
Selectable $off \xleftrightarrow{\Delta/\leftarrow} on$

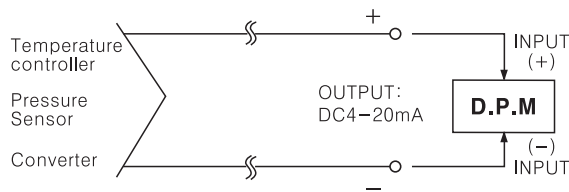
◻ **off** : Able to change or set Parameter.
◻ **on** : Disable to change but enable to check the setting value in Parameter group.

※ 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.

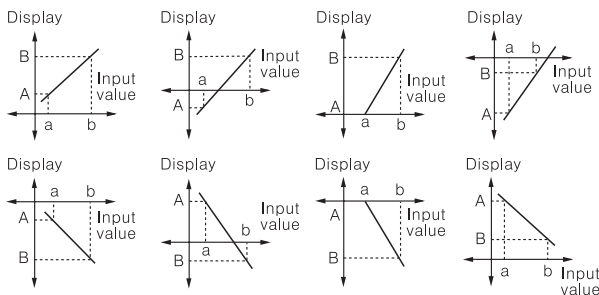
Application of connections



Functions

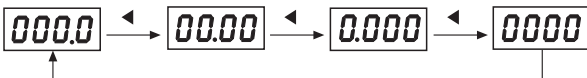
Prescale function [L-SC / H-SC Mode]

This function is to display the value setting certain Hi/Low limit value against 4-20mADC input. For example if set $a=4\text{mADC}$, $b=20\text{mADC}$ 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". So enable 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 5**, 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
E.P.Ct 0	LLLL / HHHH are displayed when it is over 0% out 4-20mADC range
E.P.Ct 1	LLLL / HHHH are displayed when it is over 1% out 4-20mADC range
E.P.Ct 2	LLLL / HHHH are displayed when it is over 2% out 4-20mADC range
E.P.Ct 3	LLLL / HHHH are displayed when it is over 3% out 4-20mADC range
E.P.Ct 4	L-SC / H-SC are displayed always when it is out of 4-20mADC 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 4-20mADC, therefore, the deviation value of current will be the scale value of measurement input range ($16\text{mA} \times 3\% = 0.48\text{mA}$).

∴ When input current is lower than 4mA-048mA = 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

[**PELH / PELL Mode**]

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

For Max. value monitoring, set delay time at **PELL** 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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