# M4NS/ M4YS

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

### ▣Features

- ●Loop powered type
- ●Measurement input : DC4−20mA
- ●Max. display range : −1999 to 9999
- ●Prescale function
- ●Decimal point change function
- ●Hi / Low limit input correction function
- ●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

**M 4 N S − N A**

| | | |
|---|---|---|
| Item | M | Meter |
| Digit | 4 | 9999(4 Digit) |
| Size | N | DIN W48×H24mm |
| | Y | DIN W72×H36mm |
| Scaling meter | S | Scaling meter |
| Power supply | N | Loop powered type |
| Input | A | DC4−20mA |

### ▣Specifications

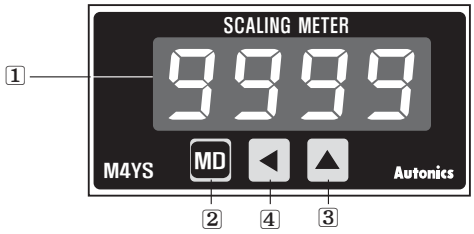
| Model | | M4NS-NA | M4YS-NA |
|---|---|---|---|
| Power supply | | Loop powered type | |
| Display method | | 7 Segment LED display | |
| Character height | | 10mm | 14mm |
| Display accuracy | | **(★1)** 0.3% F.S of ±1 digit | |
| Display cycle | | Selectable 0.5sec./1sec./2sec./3sec./4sec./5sec. | |
| Resolution | | 12,000 resolution | |
| Max. display range | | −1999 to 9999 | |
| Setting type | | Front switches | |
| Measurement input | | **(★2)** DC4−20mA | |
| Self−diagnosis function | | Error display function(HHHH/LLLL) | |
| Insulation resistance | | Min. 100MΩ (at 500VDC megger) | |
| Dielectric strength | | 2000VAC 50/60Hz for 1minute | |
| Vibration | Mechanical | 0.75mm amplitude at frequency of −10 to 55Hz in each of X, Y, Z directions for 1hour | |
| | Malfunction | 0.5mm amplitude at frequency of −10 to 55Hz in each of X, Y, Z directions for 10minute | |
| Shock | Mechanical | 300m/s² (30G) in X, Y, Z directions for 3 times | |
| | Malfunction | 100m/s² (10G) in X, Y, Z directions for 3 times | |
| Ambient temperature | | −10 to 50℃ (at non−freezing status) | |
| Storage temperature | | −25 to 66℃ (at non−freezing status) | |
| Ambient humidity | | 35 to 85%RH | |
| Unit weight | | Approx. 44g | Approx. 110g |

※**(★1)** Ambient temperature(25℃ ±5℃): 0.3% F.S of ±1Digit(−10 to 50℃: 0.4% F.S of ±1Digit)
※**(★2)** Impedance between input lines: Max. 600Ω (based on 24VDC)
Please be aware that activating input power is based on 24VDC, and the recommended impedence also will be lowered if the activating power is lower.

## ▣Front panel identification

●M4NS−NA

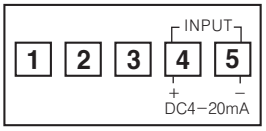

●M4YS−NA



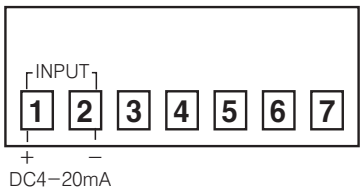

1 Display value, parameter, error display
2 **M**, MD key: When enter into parameter group, return to RUN mode, after completing parameter setting
3 ▲, ▲ (Up) key: When enter into the status of parameter setting
4 ◀, ◀ (Shift) key: When enter into the status of parameter setting and move digit

## ▣Connections

●M4NS−NA

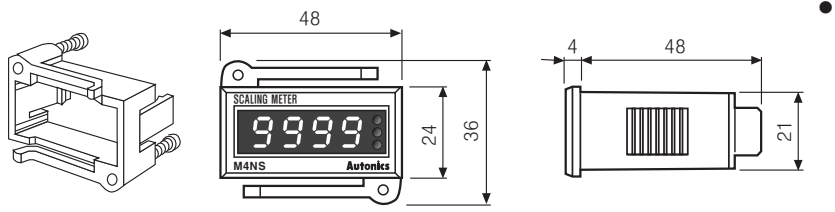



●M4YS−NA

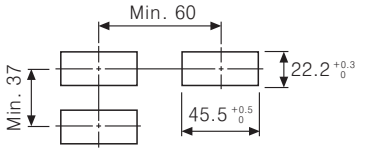



## ▣Dimensions

●M4NS−NA

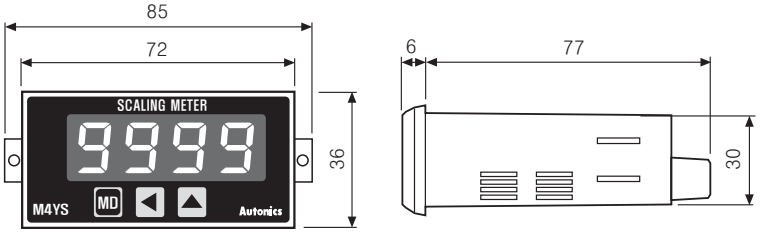



●Panel cut−out

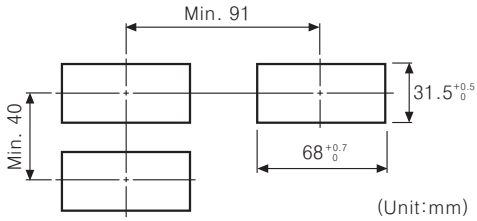



(Unit:mm)

●M4YS−NA




●Panel cut−out




(Unit:mm)

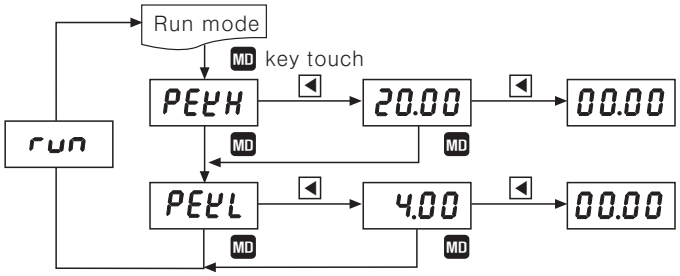
## ▣Parameter

| Display | | Function | Setting range |
|---|---|---|---|
| L-SC | Low scale | Low limit display value for 4mA input | −1.999 to 9.999<br>−19.99 to 99.99<br>−199.9 to 999.9<br>−1999 to 9999 |
| H-SC | High scale | Hi limit display value for 20mA input | |
| dot | Decimal point | Set Decimal point position | 0000, 000.0<br>00.00, 0.000 |
| Inb.L | Input bias low | Correct the Low−limit value of display value(%) | −100 to 100 |
| Inb.H | Input bias high | Correct the High−limit value of display value(%) | 0.900 to 1.100 |
| PEv.t | Peak time | See the peak value monitoring delay time | 0 to 30sec. |
| dIS.t | Display cycle | Selectable sampling period(sec) | Selectable 0.5/1.0/2.0/3.0/4.0/5.0sec. |
| E.PCt | 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 | 0400 |
| Hi limit display value for 20mA input | H-SC | 2000 |
| Set Dot position | dot | 00.00 |
| Correction of Low limit value input | Inb.L | 0000 |
| Correction of Hi limit value input | Inb.H | 1.000 |
| Peak value monitoring delay time | PEv.t | 01 S |
| Display cycle | dIS.t | 0.5 S |
| Set % of HHHH/LLLL display range | E.PCt | 3 |
| Lock setting | LoC | oFF |

## ▣Parameter group 0(Monitoring mode)



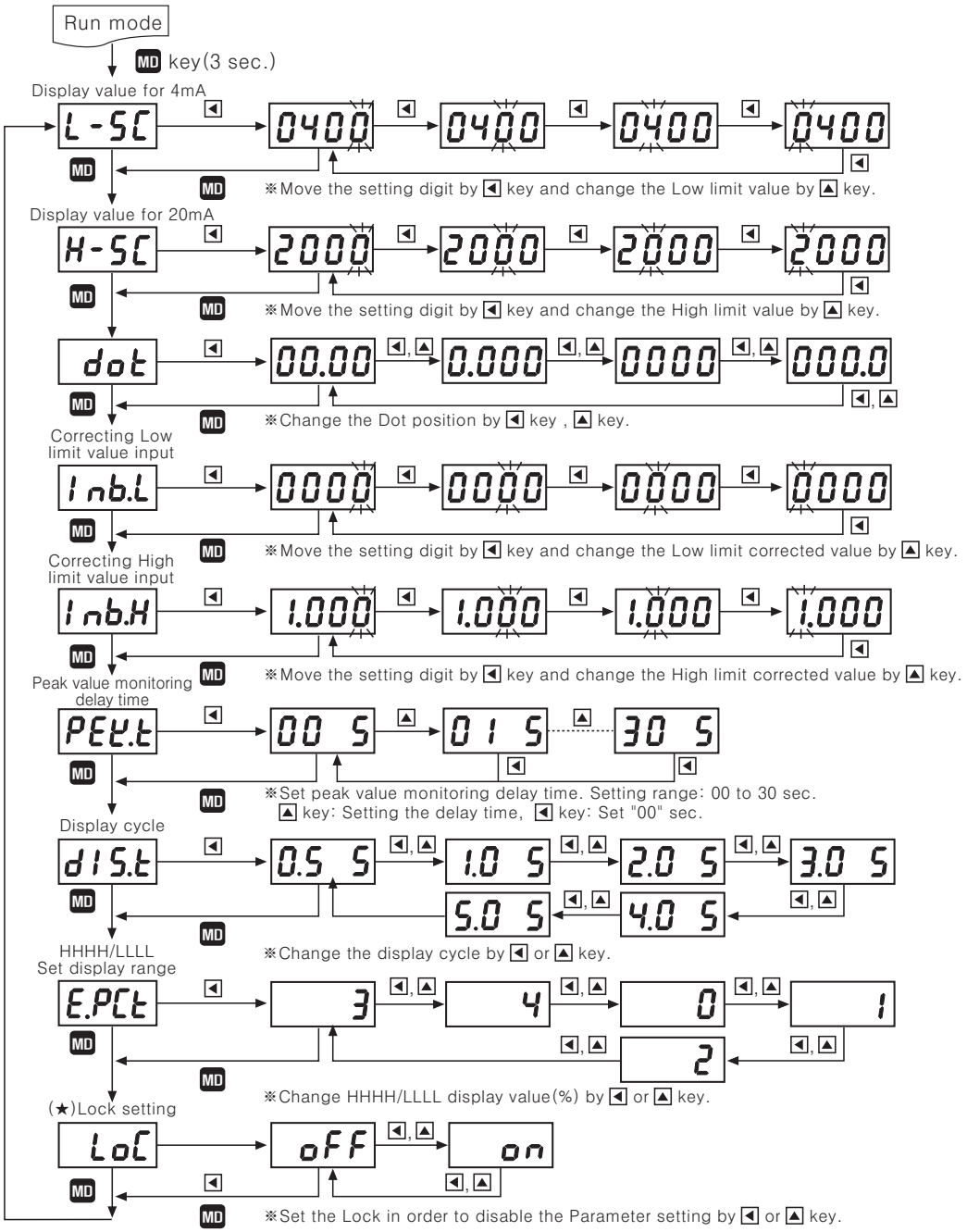

Pressing MD key to enter monitoring mode in RUN mode.

Each peak value will be shown by pressing ◀ key in monitoring mode and peak value will be initialized by pressing ◀ key once more.

If no key touched for 60sec., it will return to RUN mode.

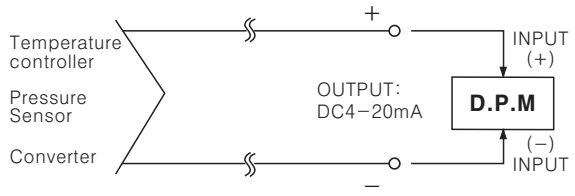
※When do not use monitoring function, set **00 S** for **PEAt** in Parameter setting.

## ▣Parameter group 1




※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 60 sec., it will return to RUN mode.
※(★)Lock setting ┌ **oFF** : Enable to change or set Parameter.
└ **on** : Disable to change or set Parameter but enable to check the setting value in Parameter group.
Disable to enter into the status of change setting value by pressing ◀, ▲ keys.

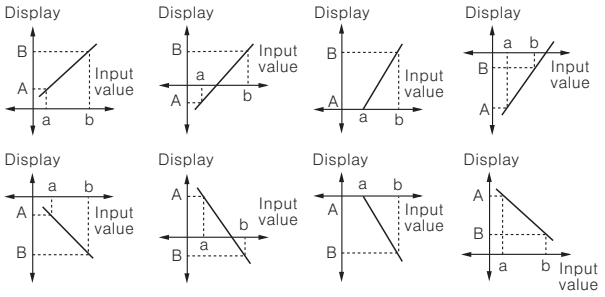
## ▣Application of connections




## ▣Functions

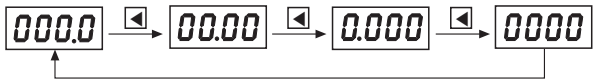
◎Prescale function [ L-SC / H-SC ]

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 ]

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 ]

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 4−20mA input,

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 enable to remove offset of Low display 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 50005×0.999 = 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 dISt mode of Parameter 2 (Selectable 0.5s/1.0s/2.0s/3.0s/4.0s/5.0s). If select 5.0s, it will be the measuring input value on an average for 5sec., then display it every 5sec.

◎Error display function [ E.PCt ]

●Error setting and sort

It will display the error message according to the setting value which set % value against analog input range and set it in E.PCt mode by ◀ , ▲ key.

| Error code | Error description |
|---|---|
| E.PCt 0 | LLLL / HHHH are displayed when it is over 0% out DC4−20mA range |
| E.PCt 1 | LLLL / HHHH are displayed when it is over 1% out DC4−20mA range |
| E.PCt 2 | LLLL / HHHH are displayed when it is over 2% out DC4−20mA range |
| E.PCt 3 | LLLL / HHHH are displayed when it is over 3% out DC4−20mA range |
| E.PCt 4 | L-SC / H-SC are displayed always when it is out of DC4−20mA range |

●Error display

①When LLLL flashs,

Input current is lower than 3% in 4−20mADC (16mA scale)

LLLL will flash when it is under 3.52mA [16mA×3%=0.48mA] → 4mA−0.48mA=3.52mA

When it is beyond Min. display value (−1999) [by display value]

②When HHHH flashs,

Input current is higher than 3% in 4−20mADC (16mA scale)

HHHH flash [16mA×3%=0.48mA] → 20mA+0.48mA=20.48mA.

When it is higher than 20.48mA.

When it is beyond Max. display value (9999) [by display value]

●Turn Error display off

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 [ PEUH / PEUL ]

This function is to monitor Max. value and Min.value by current display value then display its Data in PEUH mode and PEUL mode.

Enable to set delay time in PEU.t mode to protect the wrong Data by initial over current and settable from 0 to 30sec. and start to monitor after delay time.