Autonics

SCALING METER M4NS/M4YS SERIES INSTRUCTION MANUAL



Thank you for choosing our Autonics product. Please read the following safety considerations before use.

Safety Considerations

**Please observe all safety considerations for safe and proper product operation to avoid hazards.

 $\times \Delta$ symbol represents caution due to special circumstances in which hazards may occur. **★Warning** Failure to follow these instructions may result in serious injury or death.

∆ Caution Failure to follow these instructions may result in personal injury or product damage.

1. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment crime/disaster prevention devices, etc.)

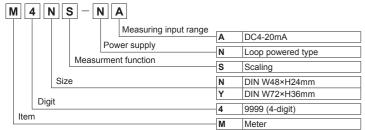
Failure to follow this instruction may result in fire, personal injury, or economic loss

- 2. Install on a device panel to use.
- Failure to follow this instruction may result in fire.
- 3. Do not connect, repair, or inspect the unit while connected to a power source. Failure to follow this instruction may result in fire.
- 4. Check 'Connections' before wiring.
- Failure to follow this instruction may result in fire
- 5. Do not disassemble or modify the unit. Failure to follow this instruction may result in fire.

∧ Caution

- 1. When connecting the power/measurement input, use AWG 24(0.20mm²) to AWG 15 (1.65mm²) cable and tighten the terminal screw with a tightening torque of 0.98 to 1.18N·m.
- Failure to follow this instruction may result in fire or malfunction due to contact failure.
- 2. Use the unit within the rated specifications.
- Failure to follow this instruction may result in fire or product damage
- 3. Use dry cloth to clean the unit, and do not use water or organic solvent. Failure to follow this instruction may result in fire.
- 4. Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present Failure to follow this instruction may result in fire or explosion
- 5. Keep metal chip, dust, and wire residue from flowing into the unit. Failure to follow this instruction may result in fire or product damage

Ordering Information

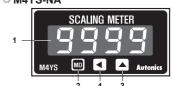


Unit Description

M4NS-NA



O 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. A. kev: When enter into the status of parameter setting
- 4. ◀, ◀ key: When enter into the status of parameter setting and move digit
- *The above specifications are subject to change and some models may be
- ※Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

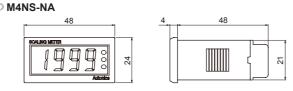
Specifications

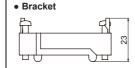
Model		M4NS-NA	M4YS-NA	
Power supply		Loop powered type		
Display method		7-segment LED display (red)		
Character height		10mm	14mm	
Display accuracy*1		F.S. 0.3% rdg ±1-digit		
Display cycle		0.5 sec/1 sec/2 sec/3 sec/4 sec/5 sec		
Resolution		12,000 resolution		
Max. display		-1999 to 9999		
Setting type		Setting type with the front keys		
Measuring input range ^{*2}		DC4-20mA		
Self-diagnosis function		Error display function		
Insulation resistance		Over 100MΩ (at 500VDC megger)		
Dielectric strength		2000VAC 50/60Hz for 1 min		
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 1 hour		
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 10 min		
Shock	Mechanical	300m/s² (approx. 30G) in each X, Y, Z direction for 3 times		
	Malfunction	100m/s² (approx. 10G) in each X, Y, Z direction for 3 times		
Environ -ment	Ambient temp.	-10 to 50°C, storage: -25 to 60°C		
	Ambient humi.	35 to 85%RH, storage: 35 to 85%RH		
Unit weight		Approx. 44g	Approx. 110g	

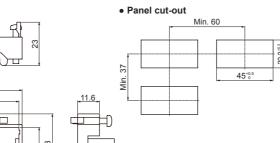
 \times 1: Ambient temperature (25°C ±5°C): F.S. 0.3% rdg of ±1-digit (-10 to 50°C: F.S. 0.4% rdg ±1-digit) X2: Impedance between input lines: Max. 600Ω (based on 24VDC)

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.

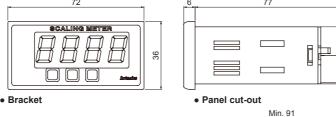
Dimensions

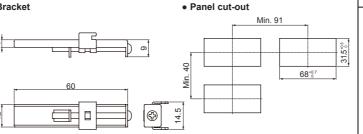






M4YS-NA





O M4YS-NA

Connections

XUse terminals of size specified below

Solution of the second of t		а	b
	<forked></forked>	Min. 3.5mm	

M4NS-NA



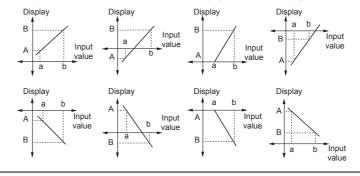


Parameter

Display		Function	Setting range	Factory default
L-5[Low scale	Low limit display value for 4mA input	-1.999 to 9.999, -19.99 to 99.99,	0400
H-5[High scale	High limit display value for 20mA input	-199.9 to 999.9, -1999 to 9999	2000
dot	Decimal point	point Set Decimal point position 0000, 000.0, 00.00, 0.000		0 0.0 0
I nb.L	Input bias low Correct the Low-limit value of display value (digit) -100 to 100		-100 to 100	0000
I nb.H	Input bias high	Correct the High-limit value of display value (%)	0.900 to 1.100	1.000
PE L.E	Max./Min. time	See the Max./Min. value monitoring delay time (sec)	0 to 30	015
di 5.E	Display time	Selectable sampling period (sec)	0.5, 1.0, 2.0, 3.0, 4.0, 5.0	0.5 5
E.P.C.E	Error %	Set % of HHHH/LLLL display range	0, 1, 2, 3, 4	3
LoE	Lock	Set the lock function	ON, OFF	oFF

Display Scale Function

This function is to display the value with setting certain Hi/Low limit value against DC4-20mA input. For example If set a=DC 4mA, b=DC 20mA and A,B as display value, it will be displayed a=A, b=B



Correction Function

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.

- nb.L: -100 to 100 [Adjust deviation of low value],
- nb.H: 0.900 to 1.100 [Correct gradient (%) of high value]
- E.g.)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 nbL 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 India value then enable to correct High value is 5005×0.999 = 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 [d1 5.t] mode of Parameter 2 (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 5 sec

Max./Min. Value Monitoring Function

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

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

Error Display Function

1. Error display

30.2

① When [LLLL] display

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

[LLLL] will display when it is under 3.52mA [16mA×3%=0.48mA] \rightarrow 4mA-0.48mA=3.52mA 2) When it is beyond Min. display value (-1999)[by display value]

② When [нннн] display

) Input current is higher than 3% in 4-20mADC (16mA scale) [НННН] display [16mA×3%=0.48mA] → 20mA+0.48mA=20.48mA.

When it is higher than 20.48mA. 2) When it is beyond Max. display value (9999)[by display value]

2. Turn Error display off

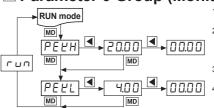
[LLLL] and [HHHH] are displayed when input is out of measuring range, therefore it will be disappeared automatically when input returns to measuring range.

3. 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.P £ £] mode by ◀, ▲ key.

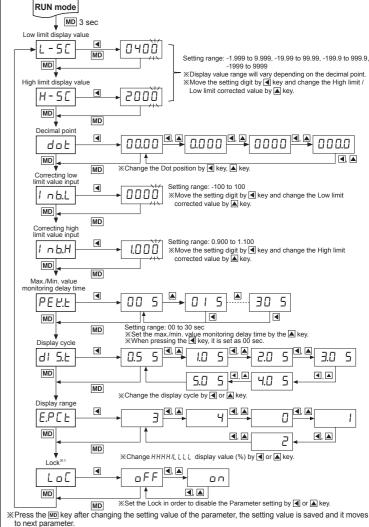
Display		Description	
E.P.C.E	0	LLLL / HHHH are displayed when it is over 0% out DC4-20mA range	
E.P.C.E	- 1	LLLL / НННН are displayed when it is over 1% out DC4-20mA range	
E.P.C.E	2	LLLL / HHHH are displayed when it is over 2% out DC4-20mA range	
E.P.C.E	3	LLLL / HHHH are displayed when it is over 3% out DC4-20mA range	
FPCH	ч	L - 5 F / H - 5 F are displayed always when it is out DC4-20mA range	

Parameter 0 Group (Monitoring Mode)



- Pressing MD key to enter Monitoring mode in RUN mode.
- Each max./min. value will be shown by pressing key in monitoring mode and max./min. value will be initialized by
- pressing | key once more. 3. If no key touched for 60 sec, it will return to RUN mode.
- 4. When do not use Monitoring function, set 00 5 for PEEL in Parameter setting.

Parameter 1 Group

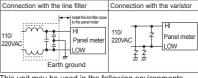


*After entering setting parameter, hold the MD key for 3 sec, it displays [RUN] and returns to RUN mode XIf any key is untouched for 60 sec, it will return to RUN mode.

X1: Lock FoFF: Enable to change or set Parameter. Lon: 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.

Cautions during Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
 Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power
- Keep away from high voltage lines or power lines to prevent inductive noise.
- In case installing power line and input signal line closely, use line filter or varistor at power line and shielded wire at input signal line. Do not use near the equipment which generates strong magnetic force or high frequency noise



4. This unit may be used in the following environments.

①Indoors (in the environment condition rated in 'Specifications') ③Pollution degree 2

②Altitude max. 2,000m

■ Major Products

- Area Sensors | Timers
 Proximity Sensors | Panel Meters
 Pressure Sensors | Tachometer/Pulse (
 Rodary Encoders | Tisplay Units
 Connector/Sockets | Sensor Controllers
 Switching Mode Power Supplies
 Control Switches/Lamps/Buzzers
- D Terminal Blocks & Cables epper Motors/Drivers/Motion Contaction of the Control of the Control

Autonics Corporation

■ HEADQUARTERS

DRW160942AC