Autonics
SMALL MULTI PANEL METER
M4NN SERIES
M A N U A L

CE

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.
※Safety considerations are categorized as follows.
⚠ **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.
※The symbols used on the product and instruction manual represent the following
⚠ symbol represents caution due to special circumstances in which hazards may occur.

⚠ Warning

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 personal injury, fire, or economic loss.
2. The unit must be installed on a device panel before use.
Failure to follow this instruction may result in electric shock.
3. Do not connect, repair, or inspect the unit while connected to a power source.
Failure to follow this instruction may result in electric shock.
4. Do not disassemble or modify the unit. Please contact us if necessary.
Failure to follow this instruction may result in electric shock or fire.
5. Check the terminal numbers before connecting the power source and measurement input.
Failure to follow this instruction may result in fire..

⚠ Caution

1. Do not use the unit outdoors.
Failure to follow this instruction may result in electric shock or shorten the life cycle of the unit.
Use the unit indoors only. Do not use the unit outdoors or at locations subject to the temperatures or humidity outside.(e.g.: rain, dirty, frost, sunlight, condensation, etc.)
2. When connecting the power part of relay output, make sure to use AWG20(0.50mm²) and tighten the terminal screw bolt above 0.74 to 0.90N·m.
Failure to follow this instruction may result in fire due to contact failure.
3. Use the unit within the rated specifications.
Failure to follow this instruction may result in shorten the life cycle of the unit or fire.
4. Do not use loads beyond the rated switching capacity of the relay contact.
Failure to follow this instruction may result in insulation failure, contact failure, contact bonding, relay damage, or fire.
5. Do not use water or oil-based detergent when cleaning the unit. Use dry cloth to clean the unit.
Failure to follow this instructions may result in electric shock or fire.
6. Do not use the unit where flammable or explosive gas, humidity, direct sunlight, radiant heat, vibration, and impact may be present.
Failure to follow this instruction may result in fire or product malfunction.
7. Keep dust and wire residue from flowing into the unit.
Failure may result in fire or product malfunction.
8. Check the polarity of the measurement input contact before wiring the unit.
Failure to follow this instruction may result in fire or explosion.

■ Ordering Information

M 4 N N - DV - 1 N

- **Control output:** N Indicator (without output function) / N NPN open collector output / 2 PNP open collector output
- **Power supply:** 1 5-24VDC
- **Input:** DV DC Voltage(minus input) / DA DC Current(minus input) / AV AC Voltage / AA AC Current
- **Type:** N New type
- **Size:** N DIN W48×H24mm
- **Digit:** 4 9999(4digit)
- **Item:** M Multi Meter

■ Unit Descriptions

1. Measured value display
2. **M** : MODE key
3. **▲** : Up key
4. **◀** : Shift key
5. OUT1(Red): OUT1 output indicator of preset
6. GO(Green): GO output indicator of preset
7. OUT2(Red): OUT2 output indicator of preset
8. Unit sticker

■ Dimension (unit: mm)

※Indicator model (M4NN-□□-1N) does not have transistor output terminal.
- Bracket
- Panel cut-out: Min. 55

■ Connections And Insulated Block Diagram

- M4NN-DV-1□
- M4NN-DA-1□
- M4NN-AV-1□
- M4NN-AA-1□

• NPN open collector
• PNP open collector
Option output
Input and output are insulated from the power.
ADC input circuit and indicator

■ Monitoring Max./Min. Value [PA 0 group: HPEƎ/LPEƎ, PA 2 group: PEƎƎ]

It monitors Max./Min. value of display value based on current display value and display the data in HPEƎ mode and LPEƎ mode of parameter 0 group. Set delay time(0 to 30 sec.) in PEƎƎ mode of parameter 2 group in order to avoid caused by initial overcurrent or overvoltage, when monitoring the peak value. Delay time is 0 to 30 sec. and it starts to monitor the peak value after set time.
When ▲◀ keys are pressed at HPEƎ and LPEƎ mode of parameter 0 group, it will be initialized.
※HPEƎ,LPEƎ parameters are not displayed when monitoring delay time [PEƎƎ] of parameter 2 group is set as 0 sec.[00 5].

■ Minus Input Display Setting [PA1 group: ñl nU]

- When minus input is unnecessary, or when display 0 not to display minus input due to display minus input function.
- When setting oFF, low-limit value of input range is set 0 and it displays minus input as 0.
- The low-limit value of L-5C,oU LL,L-rG parameters is changed based on "0". Min. display value is "0" and displays minus input as 0 in the input range.
The l nbH,H-5C/H-rG,ñl nU,L-5C/L-rG parameters are initialized to factory default.
※In case of DC Current measurement input model, when measured input range [l n-r] is set as 4-20, this parameter is not displayed.

■ AC Frequency Measurement [PA1 group: dl 5P]

It measures input signal frequency when it is an AC input. It uses fixed decimal point by dot parameter setting of parameter 1 group, measured range can be changed by setting and measured range of decimal point position is as below chart. It is available to adjust upper gradient l nbH and l nbL of parameter 1 group. In order to measure frequency normally, input signal, over 10% F.S. of the measured range, should be supplied. Please select the proper point of measurement terminal.

- Measured range

Decimal point position			
Measurement range	0.100 to 9.999Hz	0.10 to 99.99Hz	0.1 to 999.9Hz	1 to 9999Hz

※ Accuracy of frequency measurement: Below 1kHz, F.S. ±0.1rdg ±2digit. From 1 to 10kHz, F.S. ±0.3rdg ±2digit.
• l nbH : 0.100 to 9.999 (gradient adjustment of high-limit value)
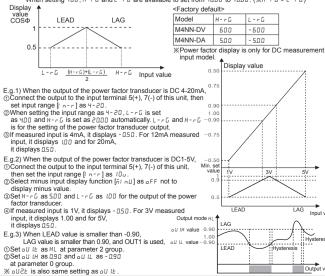• l nbL : 10², 10¹, 10⁰, 10⁻¹ (index adjustment of l nbH)

■ Error Display

Display	Description	Display	Description
HHHH	Flashes when measured input is exceeded the max. allowable input(+110%)	F-HH	Flashes when input frequency is exceeded the max. measured range(10kHz) and display range (9999)
LLLL	Flashes when input is exceeded the min. allowable input (minus input : -110%, oFF : -10%)	PF-H	Flashes when power factor display value to measured input is over than LAG 0.50
d-HH	Flashes when display input is exceeded max. display range (9999)	PF-L	Flashes when power factor display value to measured input is less than LEAD -0.50
d-LL	Flashes when display input is exceeded min. display range (-1999)	※ Error is cleared when the input value is within measurement range or display range.	

※The above specifications are subject to change and some models may be discontinued without notice.

■ Specifications

Model	M4NN-DV-1□	M4NN-DA-1□	M4NN-AV-1□	M4NN-AA-1□
	DC Voltage	DC Current	AC Voltage, Frequency	AC Current, Frequency
Max. allowable input	-110 to 110% of each measured input range (when not using minus input: -10 to 110%)		Approx. 110% of each measured input range	
Power supply	5-24VDC			
Allowable voltage range	90 to 110% of the rated voltage (5V is fixed for lower limit)			
Power consumption	Max. 3W			
Display method	7 Segment LED Display(red), Character height : 11mm			
Display accuracy	In 23±5℃ - DC type: ±0.1% F.S. ±2digit, AC type : ±0.3% F.S. ±3digit ※ 5A terminal of DA, AA type: Within ±0.3% F.S. ±3digit / In -10 to 50℃ - DC/AC type: ±0.5% F.S. ±3digit, Frequency: ±0.5% F.S. +3digit ※ 5A terminal of DA, AA type: Within ±1% F.S. ±3digit			
Display cycle	0.1 to 5.0 sec. (selectable by 0.1 sec.)			
A/D conversion method	Practical oversampling using successive approximation ADC			
Sampling cycle	50ms(resolution 1/12,000)		16.6ms(resolution 1/12,000)	
Max. display range	-1999 to 9999(4 digit)			
Preset output※1	NPN/PNP open collector output: Load voltage: max. 30VDC Load current: max. 100mA Residual voltage: max. 1VDC(NPN), max. 2VDC(PNP)			
AC measurement※2			Average value(AVG) measurement	
Frequency measurement※2			Measured range: 0.100 to 9999Hz (variable by decimal point position)	
Insulation resistance	Min. 100MΩ(at 500VDC megger)			
Dielectric strength	2000VAC for 1 minute (between all terminals and case)			
Noise strength	±2kV the square wave noise(pulse width: 1μs) by the noise simulator			
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z direction for 2 hours		
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z direction for 10 minutes		
Shock	Mechanical	100m/s²(approx. 10G) in X, Y, Z directions for 3 times		
	Malfunction	300m/s²(approx. 30G) in X, Y, Z directions for 3 times		
Environ-ment	Ambient temperature	-10 to 50℃, storage: -20 to 60℃		
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH		
Connection type	Plug/Socket terminal block (accessory)			
Insulation type	Double insulation or reinforced insulation (mark. ▣, Dielectric strength between the measuring input part and the power part : 1kV)			
Approval	CE			
Weight※3	Approx. 83.6g (approx. 46.8g)	Approx. 83.7g (approx. 46.8g)	Approx. 83.8g (approx. 46.9g)	Approx. 83.8g (approx. 46.9g)

※1: Indicator model(M4NN-□□-1N) does not have output function.
※2: AC, Frequency measurement functions are only for AC measurement type.
※3: The weight is with packaging and the weight in parentheses is only unit weight.
※Environment resistance is rated as no freezing or condensation.

■ Prescale [PA1 group: H-5C/L-5C]

This function is to display setting(-1999 to 9999) of particular high/low-limit value in order to display High/Low-limit value of measurement input. If measurement inputs are 'a' and particular values are 'A' and 'B', it will display a=A, b=B as below graphs.

Display scale function is able to change display value for min./max. measured input by setting high limit scale H-5C and low limit scale L-5C. Particular input by setting high limit scale.
E.g.) High limit scale value and low limit scale value setting (input range= 0-10V)

※When changing measured input, high limit scale value and low limit scale value are automatically changed as the default display range of the changed measured input.

■ Error Correction [PA 1 group: l nbH/l nbL]

It corrects display value error of measurement input.
l nbL : -99 to 99 (adjust deviation of low-limit value)
l nbH : 0.100 to 9.999 (correct gradient of high-limit value)
Display value=(Measured value × l nbH) + l nbL
E.g.) When the measured range is 0 to 500V, and the display range is 0 to 500.0. If the low display value is l2 to 0V input, set -12 as l nbL value to display 0.0 by adjusting offset of the low-limit value.
The display value to 500V measured input varies by adjusting the offset of low-limit value. If this display value is 50 l0, calculate 500.0/501.0 (desired display value/the display value), and set the 0.998 correction value as the l nbH to display 5000 by adjusting gradient of high-limit value.
※ The offset correction range of l nbL is within -99 to 99 for D, D display regardless of decimal point position [dot].
※ **High limit error correction function is available as "Gradient correction" and low limit error correction function is available as "Zero adjustment".**

■ Gradient Correction [PA 1 group: l nbH]

This function is to adjust gradient of standard display or scale value for the input value within the measured input range. By adjusting gradient, it is available as "High limit error correction function".
As the below(Figure 1), in case of display gradient 1 for the measured input 100V, this function is to adjust display value by adjusting the gradient as 1.5 times or 0.5 times.
• Set range: 0.100 to 9.999, factory default: 1.000 (unit: multiply)
E.g. 1) Gradient adjustment
①When the measured input is 100.0V in order to display 1500, set gradient correction set value l nbH as l500.
This value is also applied for minus input. When the measured input is -100.0V, it displays -1500.
②When the measured input is -100.0V in order to display -500, set gradient correction set value l nbH as 0500.
This value is also applied for plus input. When the measured input is 100.0V, it displays 500.

l nbH	Note
l500	※Shaded part of Figure 1 is not displayed for the below cases.
0500	• AC input model • DC input model and minus input [ñl nU] is set as oFF. • DC Current model and Input range [l n-r] is set as 4-20.

E.g. 2) Display scale setting [L-5C/H-5C] and gradient adjustment [l nbH] (AC input)
①When the measured AC 2.000V at the input range AC 0 to 5.000V and it displays 5000, set decimal point position [dot] as 0000 before setting the scale value.
②When the measured input is AC 2.000V in order to display 12.500, 12.500 should be displayed when max. input value is 5.000V. However, it can not set because the max. set value is 9.999.
Set as gradient correction set value [l nbH]×high scale value [H-5C]=12.500 as the following table.
③After this set is finished, it displays 5000 when the measured input is 2.000V.

H-5C	L-5C	l nbH	Note
12.500	0.000	1.000	**Unavailable** to set because max. set value of H-5C is 9999
6.250	0.000	2.000	In this case, any setting methods display the same display value.
3.125	0.000	4.000	
2.500	0.000	5.000	

E.g. 3) Display scale setting [L-5C/H-5C] and gradient adjustment [l nbH] (DC minus input)
①When the measured input DC -40mA at the input range DC -100.0 to 100.0mA and it displays -400, set decimal point position [dot] as 000.0 before setting the scale value.
②When the measured input is DC -40mA in order to display -600, -400.0 should be displayed when min. input value is -100.0mA. However, it cannot set because the min. set value is -199.9. Set as gradient correction set value [l nbH]×low scale value [L-5C] = -400.0 as the following table. Set high-limit scale value as -(L-5C) value. If high scale value is set at first, set low scale value as -(H-5C) value.
③After this set is finished, it displays -600 when the measured input is DC-40.0mA.

H-5C	L-5C	l nbH	Note
400.0	-400.0	1.000	**Unavailable** to set because max. set value of L-5C is 9999
200.0	-199.9	2.000	In this case, any setting methods display the same display value.
100.0	-100.0	4.000	
80.0	-80.0	5.000	

■ Power Factor [PF] Display [PA1 group: H-rG/L-rG]

- This function displays LEAD and LAG by analog output signal from the power factor transducer.
- It is available to support several outputs of the power factor transducer by high-limit[H-rG]/low-limit[L-rG] analog output value setting in the power factor transducer.
- Power factor value is displayed as cosφ value -0.50(LEAD) to 1.00 to 0.50 (LAG).
- LEAD is when current phase leads voltage phase, LAG is when current phase lags behind voltage phase. LEAD and LAG are invalid power.
- Set range: From min. to max. selected value from measurement input [l n-r].
E.g.) When setting 200 l in H-rG, it are available to set from -1999 to 2000.
When setting l0u in H-rG and L-rG are available to set from -1000 to 1000. (※H-rG > L-rG)

<Factory default>

Model	H-rG	L-rG
M4NN-DV	600	-600
M4NN-DA	500	-500

※Power factor display is only for DC measurement input model.

E.g.1) When the output of the power factor transducer is DC 4-20mA,
①Connect the output to the input terminal 5(+), 7(-) of this unit, then set input range l n-r as 4-20.
②When setting the input range as 4-20, L-rG and H-rG are set as 400 and H-rG is set as 2000 automatically. L-rG and H-rG are set for the setting of the power factor transducer output.
③If measured input is 4mA, it displays -0.50. For 12mA measured input, it displays 0.50 and for 20mA, it displays 1.00.

E.g.2) When the output of the power factor transducer is DC1-5V,
①Connect the output to the input terminal 5(+), 7(-) of this unit, then set the input range l n-r as l0u.
②Select minus input display function [ñl nU] as oFF not to display minus input.
③Set H-rG as 500 and L-rG as l00 for the output of the power factor transducer.
④If measured input is 1V, it displays -0.50. For 3V measured input, it displays 1.00 and for 5V, it displays 0.50.

E.g.3) When LEAD value is smaller than -0.90, LAG value is smaller than 0.90, and OUT1 is used,
①Set oU LL as H-rG and parameter 0 group.
②Set oU LH as 090 and oU LL as 090 at parameter 0 group.
③ oU2H is also same setting as oU LH.

■ Input Type And Range [PA 1 group : l n-r]

Type	Measured input range	Display	Input impedance	Display range [Std]	Note
DC Voltage	-600-600V	600u	4.694MΩ	-600 to 600	※ For DC input, not to display minus input, set minus input [ñl nU] of parameter 1 group as oFF. E.g.) When the display range is -600 to 600V, set ñl nU of parameter 1 group as oFF and this display range is 0 to 600V.
	-200-200V	200u	4.694MΩ	-199.9 to 200.0	
	-100-100V	100u	794kΩ	-100.0 to 100.0	
	-20-20V	20u	794kΩ	-19.99 to 20.00	
	-10-10V	10u	79kΩ	-10.00 to 10.00	
	-2-2V	2u	79kΩ	-1.999 to 2.000	
	-1-1V	1u	7.5kΩ	-1.000 to 1.000	
	-200-200mV	200ñu	7.5kΩ	-199.9 to 200.0	
DC Current	-5-5A	5A	0.01Ω	-5.00 to 5.00	
	-2-2A	2A	0.01Ω	-1.999 to 2.000	
	-1-1A	1A	0.1Ω	-1.000 to 1.000	
	-200-200mA	200ñA	0.1Ω	-199.9 to 200.0	
	-100-100mA	100ñA	1.1Ω	-100.0 to 100.0	
	-20-20mA	20ñA	1.1Ω	-19.99 to 20.00	
	4-20mA	4-20	1.1Ω	4.00 to 20.00	
	-2-2mA	2ñA	11.1Ω	-1.999 to 2.000	
AC Voltage	0-600V	600u	5.011MΩ	0.0 to 600.0	
	0-250V	250u	5.011MΩ	0.0 to 250.0	
	0-110V	110P	1.111MΩ	0.0 to 440.0	
	0-50V	50u	1.11MΩ	0.00 to 50.00	
	0-20V	20u	224kΩ	0.00 to 20.00	
	0-10V	10u	224kΩ	0.00 to 10.00	
	0-2V	2u	24kΩ	0.000 to 2.000	
	0-1V	1u	24kΩ	0.000 to 1.000	
AC Current	0-5A	5A	0.01Ω	0.000 to 5.000	
	0-2.5A	2.5A	0.01Ω	0.000 to 2.500	
	0-1A	1A	0.05Ω	0.000 to 1.000	
	0-500mA	500A	0.1Ω	0.0 to 500.0	
	0-250mA	250A	0.1Ω	0.0 to 250.0	
	0-1A	1A	0.5Ω	0.00 to 1.00	
	0-50mA	50A	0.5Ω	0.00 to 50.00	

dot	Display range
0	-1999 to 9999
0	-199.9 to 999.9
00	-19.99 to 99.99
000	-1.999 to 9.999

(the setting range varies depending on the decimal point setting)

※Please wire proper terminal to its max. input voltage within 30 to 100% of input terminal. When it is higher than rated voltage, it may cause breakdown of terminal and over display range and the accuracy is decreased when it is connected to the terminal under 30%.
※For the range setting of AC voltage, when setting as 0 to 110V [110P] and using P.T for 440V/110VAC, 110V is input and 440V is displayed automatically by the set scale value for P.T users' convenience.
※Frequency measurement range (AC voltage/current) : 0.100 to 9999Hz

■ Display Cycle Delay [PA 2 group: dl 5t]

In some applications the measured input may fluctuate which in turn causes the display to fluctuate. By adjusting the display cycle delay function time at dl 5t of parameter 2 group, the operator can adjust the display time within a range of 0.1 sec to 5 sec. For example, if the operator sets the display cycle time to 4.0 sec., the display value is displayed the averaged input value over 4 sec. in every 4 sec.

■ Zero Adjustment

Forces the display value of measured input to 0(Zero).
• Zero adjustment range : -99 to 99
• Zero adjustment method : Press ▲ and ◀ keys in RUN mode for 3 sec.
When zero point adjustment with front key and hold terminal is finished normally, zero point of measurement terminal is displayed and the adjusted value is saved in l nbL automatically.
※ If zero adjustment range is exceeded, the error [ouEr] flashes twice and then move to RUN mode, displaying previous setting value.

■ Initialization

RUN mode
Press ▲+◀ for over 5 sec.
When zero point adjustment...
※Flashes twice and returns to RUN mode.

■ Preset Output Mode [PA 2 group: oU 1t/oU2t]

Mode	Output operation	Operation	Mode	Output operation	Operation
oFF		No output	HL		Period ON : Display value ≥ oU LL Period OFF : Display value < oU LL
HI		Period ON : Display value ≥ oU LH Period OFF : Display value < oU LH-HY5.	HL-G		Period ON : Display value ≥ oU LL Period OFF : Display value < oU LL+HY5.
Lo		Period ON : Display value ≤ oU LL Period OFF : Display value ≤ oU LL+HY5.			Period ON : Display value ≥ oU LL Period OFF : Display value ≥ oU LH+HY5.

※ Set output mode separately for each OUT1/OUT2.
※ OUT1/OUT2 are operated individually depending on output operation mode.
※ Setting output mode of parameter 0 group is displayed depending on output operation mode.
※ GO outputs when the period both OUT1/OUT2 are off.(NPN/PNP open collector output type)

■ Parameter 0 Group

RUN mode
- oU LH : High-limit preset value of oU LL
- oU LL : Low-limit preset value of oU LL
- oU2H : High-limit preset value of oU2L
- oU2L : Low-limit preset value of oU2L
- HPEƎ : Displays high peak
- LPEƎ : Displays low peak

It is not displayed when OUT1/2 preset output mode [oU Lt, oU2t] of parameter 2 group is oFF.
Set range: Refer to input type and range.

If monitoring delay time [PEƎƎ] of parameter 2 group is set as 00 sec. [00 5], these are not displayed.
※ It is initialized by pressing any one of ▲◀ keys.

■ Parameter 2 Group

RUN mode
Press M 3 sec.
- PA2
- oU 1t : Preset output mode of OUT1
- oU2t : Preset output mode of OUT2
- HY5 1 : Preset hysteresis of OUT1
- HY52 : Preset hysteresis of OUT2
- PEƎƎ : Monitoring delay time. Set range: 00 to 30 sec.
- dl 5t : Display period. Set range: 0.1 to 5.0 sec. (selectable by 0.1 sec.)
- LoC : Lock. Set range: oFF, LoC1, LoC2, LoC3

Set range: oFF, HI, Lo, HL, HL-G. Only displayed in OUT1/2 output model
Set range: 10% F.S. Not displayed when preset output mode [oU 1t, oU2t] of parameter 1 group is set as oFF.

oFF	Unlock	LoC2	Lock PA 1, 2 groups
LoC1	Lock PA 1 group	LoC3	Lock PA 0,1,2 groups

■ Parameter 1 Group

RUN mode
Press M 3 sec.
- PA1
- l n-r : Measured input type
- ñl nU : Minus input display (DC input only) on/oFF
- dl 5P : Display method — Std / SCAL / FrEq
  - Std: AC Voltage/Current
  - SCAL: DC Voltage/Current — dot Decimal point position. Set range: 0, 00, 000, 0000 / H-5C High-limit scale value / L-5C Low-limit scale value
  - FrEq: Frequency — dot Decimal point position. Set range: 0, 00, 000, 0000 / l nbH Mantissa of gradient correction for frequency. Set range of mantissa: 0.100 to 9.999 / l nbL Index of gradient correction for frequency. 10.0, 10.1, 10-2, 10-1
- PF Power factor — H-rG High-limit input / L-rG Low-limit input
- l nbH : Deviation correction of high limit value (gradient correction). Set range: 0.100 to 9.999 (multiply)
- l nbL : Deviation correction of low limit value (zero point). Set range: -99 to 99

●Parameter setting
1. Each parameter alternately displays parameter name and setting value in 0.5 sec.
2. Press M key to save setting value and it moves to next parameter.
3. If any key is not touched for 60 sec. in each parameter, it returns to RUN mode.
4. Press M key for 3 sec., it is returned to RUN at any position.
5. Press ▲, ◀ key to change the setting value at the parameter. ◀ moves set digit, ▲ changes set value)
※Press any key between ▲ ◀.
※1: Refer to input type and range.

■ Factory Default

※1: Not displayed for indicator model.

Type	Parameters	M4NN-DV	M4NN-DA	M4NN-AV	M4NN-AA	Type	Parameters	M4NN-DV	M4NN-DA	M4NN-AV	M4NN-AA
PA1 (PA 1 group)	l n-r	600u	5A	600u	5A	PA0 (PA 0 group)	oU 1H※1	600	500	600	500
	ñl nU	on					oU 1L※1	-600	-500	0	0
	dl 5P	Std	Std	Std	Std		oU2H※1	600	500	600	500
	H-5C	600	500	600	500		oU2L※1	-600	-500	0	0
	L-5C	-600	-500	0	0		HPEƎ※1	oFF			
	l nbH	1.000					LPEƎ※1	oFF			
	l nbL	00				PA2 (PA 2 group)	oU 1t※1	oFF			
	H-rG	600	500				oU2t※1	oFF			
	L-rG	-600	-500				HY51※1	10.0			
	l nbE			10.0	10.0		HY52※1	10.0			
							PEƎƎ	00 5	00 5	00 5	00 5
							dl 5t	02 5	02 5	02 5	02 5
							LoC	oFF	oFF	oFF	oFF

■ Caution During Use

1. Please separate the unit wiring from high voltage lines or power lines to prevent inductive noise.
2. Install a power switch or circuit breaker to control the power supply.
3. The power switch or circuit breaker should be installed where it is easily accessible by the user.
4. Be sure to avoid using the following unit near by machinery making strong high frequency noise. (High frequency welder & Sewing machine, High capacity SCR unit etc.)
5. When input is applied, if "HHHH" or "LLLL" is displayed, there is some problem with measured input, please check the line after power off.
6. Input line: Shield wire must be used when the measuring input line is getting longer in the place occurring lots of noise.
7. This product may be used in the following environments
① It shall be used indoor.
② Altitude up to 2,000m.
③ Pollution degree 2
④ Installation category II
※Failure to follow these instructions may result in product damage.
- Using double shield wire
- Using Single shield wire
* D.P.M(Digital Panel Meter)

■ Major Products

- Photoelectric Sensors
- Fiber Optic Sensors
- Door Sensors
- Door Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connectors/Sockets
- Switching Mode Power Supplies
- I/O Terminal Blocks & Cables
- Graphic/Logic Panels
- Laser Marking System(Fiber, Co₂, Nd:yag)
- Laser Welding/Cutting System
- Temperature Controllers
- Temperature/Humidity Transducers
- SSR/Power Controllers
- Counters
- Timers
- Panel Meters
- Tachometer/Pulse(Rate)Meters
- Display Units
- Sensor Controllers
- Switches/Lamps/Buzzers
- Stepper Motors/Drivers/Motion Controllers
- Field Network Devices

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http://www.autonics.com
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※HEADQUARTERS:
18, Bansong-ro 513beon-gil, Haeundae-gu, Busan, Korea
OVERSEAS SALES:
#402-404, Bucheon Techno Park, 655, Pyeongcheon-ro, Wonmi-gu, Bucheon, Gyeonggi-do, Korea
TEL: 82-32-610-2730 / FAX: 82-32-329-0728
E-mail: sales@autonics.com

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