

Safety Precautions

- 'Safety Precautions' are provided to ensure safe and proper use of the product and to prevent accidents or hazards. Please make sure to follow them carefully.
- ⚠ symbol indicates a caution, warning of potential hazards under certain conditions.

⚠ Warning Failure to follow instructions may result in serious injury or death.

01. **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, economic loss or fire.
02. **Do not use or store the unit in the place where flammable / explosive / corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact or salinity may be present.**
    Failure to follow this instruction may result in explosion or fire.
03. **Install on a device panel to use.**
    Failure to follow this instruction may result in fire.
04. **Do not connect, repair, or inspect the unit while connected to a power source.**
    Failure to follow this instruction may result in fire.
05. **Check 'Connections' before wiring.**
    Failure to follow this instruction may result in fire.
06. **Do not disassemble or modify the unit.**
    Failure to follow this instruction may result in fire.

⚠ Caution Failure to follow instructions may result in injury or product damage.

01. **When connecting the power / measurement input and relay output, use AWG 24 (0.20 mm^2) to AWG 20 (0.50 mm^2) cable or over and tighten the terminal screw with a tightening torque of 0.74 to 0.90 N m.**
    Failure to follow this instruction may result in fire or malfunction due to contact failure.
02. **Use the unit within the rated specifications.**
    Failure to follow this instruction may result in fire or product damage.
03. **Use a dry cloth to clean the unit, and do not use water or organic solvent.**
    Failure to follow this instruction may result in fire.
04. **Keep the product away from metal chip, dust, and wire residue which flow into the unit.**
    Failure to follow this instruction may result in fire or product damage.

4 Digit Multi Panel Meters

M4NN Series

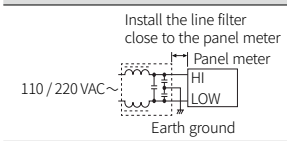
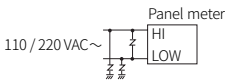
PRODUCT MANUAL

For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.
The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.

CE UKCA EAC

Cautions During Use

- Follow instructions in 'Cautions during Use'.
  Otherwise, It may cause unexpected accidents.
- Power supply should be insulated and limited voltage / current or Class 2, SELV power supply device.
- 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.

Connection with the line filter	Connection with the varistor
	

- This unit may be used in the following environments.
  - Indoors (in the environment condition rated in 'Specifications')
  - Altitude max. 2,000 m
  - Pollution degree 2
  - Installation category II

Ordering Information

This is only for reference, the actual product does not support all combinations.
For selecting the specified model, follow the Autonics webstie.

M 4 N N - ❶ - ❷ ❸

❶ Input type
DV: DC voltage
DA: DC current
AV: AC voltage
AA: AC current

❷ Power supply
1: 5 - 24 VDC

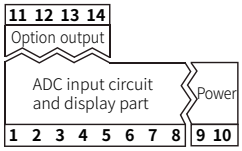
❸ Preset output
N: Indicator
1: NPN open collector
2: PNP open collector

Product Components

- Product (+ bracket)
- Unit sticker
- Instruction manual

Cautions during Wiring

- Input and output are insulated from the power.



Specifications

Model	M4NN-DV-1□	M4NN-DA-1□	M4NN-AV-1□	M4NN-AA-1□
Input type	DC voltage	DC current	AC voltage [01]	AC current [01]
Max. allowable input	Dependent on the input type			
+DC input	≈ -10 to 110 % F.S. for each measured input range		-	
-DC input	≈ -110 to 110 % F.S. for each measured input range		-	
AC input	-		≈ 110 % F.S. for each measured input range	
Display method	7-segment (red) LED (character height: 11 mm)			
Display accuracy	Dependent on the ambient temperature			
23 ± 5 °C	± 0.1 % F.S. rdg ± 2-digit	± 0.1 % F.S. rdg ± 2-digit [02]	± 0.3 % F.S. rdg ± 3-digit	± 0.3 % F.S. rdg ± 3-digit
-10 to 50 °C	± 0.5 % F.S. rdg ± 3-digit	± 0.5 % F.S. rdg ± 3-digit [03]	± 0.5 % F.S. rdg ± 3-digit	± 0.5 % F.S. rdg ± 3-digit [03]
Display cycle	0.1 to 5.0 sec (select per 0.1 sec)			
Display scale	-1999 to 9999 (4-digit)			
A / D conversion method	Practical oversampling using successive approximation ADC			
Sampling cycle	50 ms		16.6 ms	
Resolution	1 / 12,000			
Preset output	NPN / PNP open collector output model			
Load voltage	≤ 30 VDC⎓			
Load current	≤ 100 mA			
Residual voltage	NPN open collector output: ≤ 1 VDC⎓ / PNP open collector output: ≤ 2 VDC⎓			
Protection rating	IP53 (front part, IEC standard)			
Unit weight (packaged)	≈ 46.8 g (≈ 83.7 g)		≈ 46.9 g (≈ 83.8 g)	
Certification	CE UK EAC		CE UK EAC	

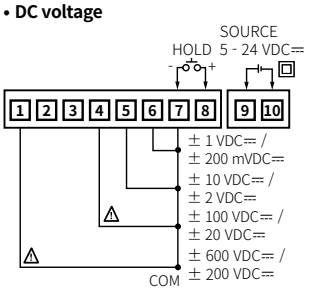
01) Available frequency display
02) 5 A terminal: ± 0.3 % F.S. rdg ± 3-digit
03) 5 A terminal: ± 1 % F.S. rdg ± 3-digit

Power supply	5 - 24 VDC⎓
Permissible voltage range	90 to 110 % of rated voltage (low-limit: 5 VDC⎓ fixed)
Power consumption	≤ 3 W
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)
Dielectric strength	Between the charging part and the case: 3,000 VAC~ 50 / 60 Hz for 1 min
Noise immunity	± 2 kV square wave noise (pulse width: 1 μs) by the noise simulator
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 2 hours
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 10 min
Shock	300 m/s^2 (≈ 30 G) in each X, Y, Z direction for 3 times
Shock (malfunction)	100 m/s^2 (≈ 10 G) in each X, Y, Z direction for 3 times
Ambient temperature	-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)
Insulation type	Symbol: ⧈, double or reinforced insulation (dielectric strength between the measurement input part and the power part: 1 kV)
Connection	Plug type - socket type terminal

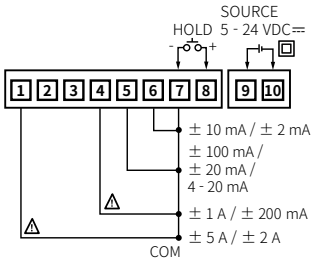
Connections

■ Input

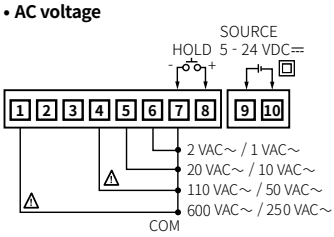
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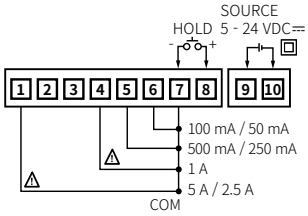
• DC current



• AC voltage

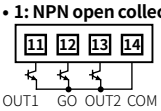


• AC current

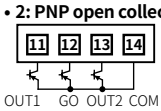


■ Output

• 1: NPN open collector



• 2: PNP open collector

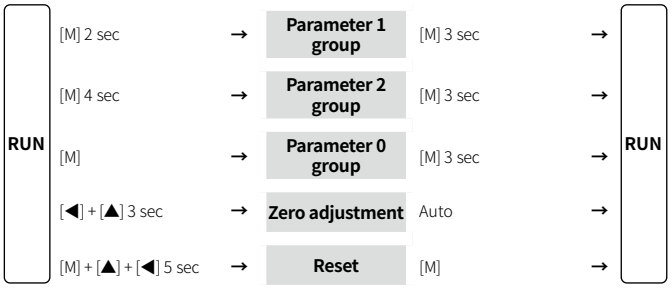


Error

Error display is released automatically when it is in the measured and display range.

Display	Description	Troubleshooting
HHHH	Flashes when measurement input is exceeded the max. allowable input (110 %)	Disconnect power supply and check the cables.
LLLL	Flashes when measurement input is exceeded the min. allowable input (minus input display as ON: -110 % / minus input display as OFF: -10 %)	
d-HH	Flashes when measurement input is exceed the max. display value (9999)	Reset within the display range.
d-LL	Flashes when measurement input is exceed the min. display value (-1999)	
F-HH	Flashes when input frequency is exceed the max. measured range (10 kHz) and display range (9999)	-
PF-H	Flashes when power factor display value to measured input is over than LAG 0.50	
PF-L	Flashes when power factor display value to measured input is less than LEAD -0.50	
oUEr	Flashes twice when it exceeds zero range (±99) and returns to run mode	Reset within the zero range.

Mode Setting



Parameter Setting

- Some parameters are activated / deactivated depending on the model or setting of other parameters. Refer to the description of each parameter.
- If any key is not entered for 60 sec in each parameter, it returns to RUN mode.
- [M] key: Saves current setting value and moves to the next parameter.
  [◀] key: Checks fixed value / Changes setting digits.
  [▲] key: Changes setting values.

■ Parameter 1 group

Parameter		Display	Defaults	Setting range	Display condition
1-1	Input range	In-r	600u	[DC voltage model], [AC voltage model] • Refer to Input Range and Display Range	-
			5A	[DC current model], [AC current model] • Refer to Input Range and Display Range	-
1-2	Minus input display	-inU	on	[DC voltage model], [DC current model] ON, OFF	1-1 Input range: except 4-20mA
1-3	Display method	diSP	Stnd	STND: standard, SCAL: scale, FREQ: frequency[01], PF: power factor[02]	-
1-4	High-limit display value gradient correction	InbH	1.000	0.100 to 9.999 %	1-3 Display method: STND
1-5	Low-limit display value deviation correction	InbL	00	-99 to 99	
1-6	Decimal point position	dot	0	0, 0.0, 0.00, 0.000	1-3 Display method: SCAL & * 1-6 Decimal point position: 0.0, 0.00, 0.000
1-7	High-limit scale	H-SC	-	Display value against max. measurement input*	
1-8	Low-limit scale	L-SC	-	Display value against min. measurement input*	
1-9	High-limit display value gradient correction	InbH	1.000	0.100 to 9.999 %	
1-10	Low-limit display value deviation correction[03]	InbL	00	-99 to 99	
1-11	Decimal point position[04]	dot	0	0, 0.0, 0.00, 0.000	1-3 Display method: FREQ
1-12	High-limit display value gradient correction	InbH	1.000	0.100 to 9.999	
1-13	Exponent of INB	InbE	10 0	10 0: 10^0, 10-1: 10^{-1}, 10-2: 10^{-2}, 10 1: 10^1	
1-14	High-limit input value	H-rG	-	Max. value of input range	1-3 Display method: PF
1-15	Low-limit input value	L-rG	-	Min. value of input range	

01) Displays at AC voltage or AC current model only.
02) Displays at DC voltage or DC current model only.
03) Low-limit display value deviation correction range is within -99 to 99 for D^0, D^{-1} digit regardless of decimal point position.
04) Display range is variable according to decimal point position.

Dot	Display range	Frequency measurement range
0	-1999 to 9999	1 to 9999 Hz
0.0	-199.9 to 999.9	0.1 to 999.9 Hz
0.00	-19.99 to 99.99	0.10 to 99.99 Hz
0.000	-1.999 to 9.999	0.100 to 9.999 Hz

■ Parameter 2 group

Parameter		Display	Defaults	Setting range	Display condition
2-1	OUT1 operation mode	oU1.t	oFF	[Preset setting model] OFF, HI, LO, HL, HL-G • Refer to Output Operation Mode	-
2-2	OUT2 operation mode	oU2.t	oFF	[Preset setting model] OFF, HI, LO, HL, HL-G • Refer to Output Operation Mode	-
2-3	OUT1 hysteresis	HYS.1	-	[Preset setting model] Within 10 % of max. display range, digit	2-1 OUT1 operation mode: except OFF
2-4	OUT2 hysteresis	HYS.2	-	[Preset setting model] Within 10 % of max. display range, digit	2-2 OUT2 operation mode: except OFF
2-5	Peak monitoring delay time	PEAK	005	[Preset setting model] 00 to 30 sec	-
2-6	Display cycle	dIS.t	0.2 S	[Preset setting model] 0.1 to 5.0 sec	-
2-7	Lock	LoC	oFF	[Preset setting model] OFF: unlock, LOC1: lock parameter 1, LOC2: lock parameter 1, 2, LOC3: lock parameter 0, 1 and 2	-

■ Parameter 0 group

Parameter		Display	Defaults	Setting range [01]	Display condition
0-1	OUT1 high-limit output setting value	oU1.H	600	[DC voltage model & Preset setting model]	2-1 OUT1 operation mode: except OFF
			5.00	[DC current model & Preset setting model]	
			6000	[AC voltage model & Preset setting model]	
			5.000	[AC current model & Preset setting model]	
0-2	OUT1 low-limit output setting value	oU1.L	-600	[DC voltage model & Preset setting model]	
			-5.00	[DC current model & Preset setting model]	
			000.0	[AC voltage model & Preset setting model]	
			0.000	[AC current model & Preset setting model]	
0-3	OUT2 high-limit output setting value	oU2.H	600	[DC voltage model & Preset setting model]	2-2 OUT2 operation mode: except OFF
			5.00	[DC current model & Preset setting model]	
			6000	[AC voltage model & Preset setting model]	
			5.000	[AC current model & Preset setting model]	
0-4	OUT2 low-limit output setting value	oU2.L	-600	[DC voltage model & Preset setting model]	
			-5.00	[DC current model & Preset setting model]	
			000.0	[AC voltage model & Preset setting model]	
			0.000	[AC current model & Preset setting model]	
0-5	Display max. peak value [02]	H.PEAK	0	[DC voltage model] Max. peak value in run mode	2-1 OUT1 operation mode: except OFF or 2-2 OUT2 operation mode: except OFF & 2-5 Peak monitoring delay time: except 00
			0.00	[DC current model] Max. peak value in run mode	
			0.0	[AC voltage model] Max. peak value in run mode	
			0.000	[AC current model] Max. peak value in run mode	
0-6	Display min. peak value [02]	L.PEAK	0	[DC voltage model] Min. peak value in run mode	
			0.00	[DC current model] Min. peak value in run mode	
			0.0	[AC voltage model] Min. peak value in run mode	
			0.000	[AC current model] Min. peak value in run mode	

01) Setting range of OUT1 / 2 high / low-limit output setting value
[DC voltage model], [DC current model]
1-2 minus input display OFF = -10 to 110 % of display range
1-2 minus input display ON = -110 to 110 % of display range
[AC voltage model], [AC current model]
0 to 110 % of display range

02) Reset: Press any one of [◀], [▲] keys.

Reset

01. Press the [M] + [▲] + [◀] keys for over 5 sec. in run mode, parameter INIT is displayed.
02. Displays the setting value as NO by pressing the direction keys.
03. Change the setting value as YES by pressing the direction keys.
04. If you press the [M] key, the following parameters flashes twice in sequence, then all parameter values are reset to the default and return to run mode.
- M4NN-DV/AV: 0000 > 600V > STND
- M4NN-DA/AA: 0000 > 5A > STND

Input Range and Display Range

When the max. input value is over the 100 %, it may result in input terminal damage.

■ DC voltage model

Input range	Display range				Input impedance
	Diaplay method: STND (fixed)		Diaplay method: SCAL [01]		
-600 - 600 VDC⎓	-600 to 600	600u			4.69 MΩ
-200 - 200 VDC⎓	-199.9 to 200.0	200u			4.69 MΩ
-100 - 100 VDC⎓	-100.0 to 100.0	100u	Decimals	Display range	794 kΩ
-20 - 20 VDC⎓	-19.99 to 20.00	20u	0	-1999 to 9999	794 kΩ
-10 - 10 VDC⎓	-10.00 to 10.00	10u	0.0	-199.9 to 999.9	79 kΩ
-2 - 2 VDC⎓	-1.999 to 2.000	2u	0.00	-19.99 to 99.99	79 kΩ
-1 - 1 VDC⎓	-1.000 to 1.000	1u	0.000	-1.999 to 9.999	7.5 kΩ
-200 - 200 mVDC⎓	-199.9 to 200.0	0.2u			7.5 kΩ

01) Connect to the input terminals whose 30 % to 100 % of the input range includes the max. value of the input range to measure.
When the max. input value is under the 30 % of the input terminal range, display accuracy is degraded.

■ DC current model

Input range	Display range				Input impedance
	Diaplay method: STND (fixed)		Diaplay method: SCAL [01]		
-5 - 5 A	-5.00 to 5.00	5A			0.01 Ω
-2 - 2 A	-1.999 to 2.000	2A			0.01 Ω
-1 - 1 A	-1.000 to 1.000	1A	Decimals	Display range	0.1 Ω
-200 - 200 mA	-199.9 to 200.0	0.2A	0	-1999 to 9999	0.1 Ω
-100 - 100 mA	-100.0 to 100.0	0.1A	0.0	-199.9 to 999.9	1.1 Ω
-20 - 20 mA	-19.99 to 20.00	20mA	0.00	-19.99 to 99.99	1.1 Ω
4 - 20 mA	4.00 to 20.00	4-20	0.000	-1.999 to 9.999	1.1 Ω
-10 - 10 mA	-10.00 to 10.00	10mA			11.1 Ω
-2 - 2 mA	-1.999 to 2.000	2mA			11.1 Ω

01) Connect to the input terminals whose 30 % to 100 % of the input range includes the max. value of the input range to measure.
When the max. input value is under the 30 % of the input terminal range, display accuracy is degraded.

■ AC voltage model

Input range	Display range				Input impedance
	Diaplay method: STND (fixed)		Diaplay method: SCAL [01]		
0 - 600 VAC~	0.0 to 600.0	600u			4.987 MΩ
0 - 250 VAC~	0.0 to 250.0	250u			4.987 MΩ
0 - 110 VAC~ [02]	0.0 to 440.0	110P	Decimals	Display range	1.087 MΩ
0 - 50 VAC~	0.00 to 50.00	50u	0	-1999 to 9999	1.087 MΩ
0 - 20 VAC~	0.00 to 20.00	20u	0.0	-199.9 to 999.9	200 kΩ
0 - 10 VAC~	0.00 to 10.00	10u	0.00	-19.99 to 99.99	200 kΩ
0 - 2 VAC~	0.000 to 2.000	2u	0.000	-1.999 to 9.999	20 kΩ
0 - 1 VAC~	0.000 to 1.000	1u			20 kΩ

01) Connect to the input terminals whose 30 % to 100 % of the input range includes the max. value of the input range to measure.
When the max. input value is under the 30 % of the input terminal range, display accuracy is degraded.

02) In case of 0 to 110 VAC~ of AC voltage range and using P.T (potential transformer) for 440 VAC~ / 110 VAC~, if 110 VAC~ is input, and the unit displays 440 VAC~ automatically by preset scale value for P.T user's convenient.

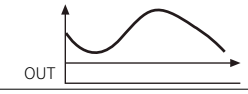
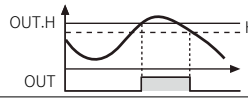
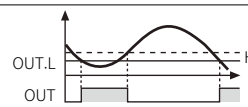
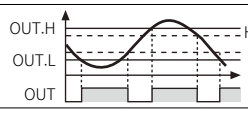
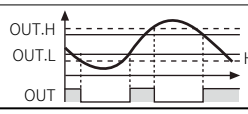
■ AC current model

Input range	Display range				Input impedance
	Diaplay method: STND (fixed)		Diaplay method: SCAL [01]		
0 - 5 A	0.000 to 5.000	5A			0.01 Ω
0 - 2.5 A	0.000 to 2.500	2.5A			0.01 Ω
0 - 1 A	0.000 to 1.000	1A	Decimals	Display range	0.05 Ω
0 - 500 mA	0.0 to 500.0	0.5A	0	-1999 to 9999	0.1 Ω
0 - 250 mA	0.0 to 250.0	0.25A	0.0	-199.9 to 999.9	0.1 Ω
0 - 100 mA	0.0 to 100.0	0.1A	0.00	-19.99 to 99.99	0.5 Ω
0 - 50 mA	0.00 to 50.00	50mA	0.000	-1.999 to 9.999	0.5 Ω

01) Connect to the input terminals whose 30 % to 100 % of the input range includes the max. value of the input range to measure.
When the max. input value is under the 30 % of the input terminal range, display accuracy is degraded.

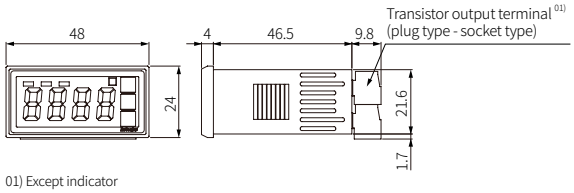
Output Operation Mode

- The below describes based on OUT1.
- OUT1 and OUT2 of output operations are same. It operates individually by the set output operation mode.
  GO output turns ON when the OUT1 and OUT2 turn OFF at the same time. (NPN / PNP open collector output type model)
- When changing output operation mode, high-limit / low-limit output setting value, hysteresis are reset.

MODE	Output operation	Preset output	
		ON	OFF
oFF		No output	
HI		OU1.H ≤ Display value	OU1.H - HYS.1 ≧ Display value
Lo		OU1.L ≧ Display value	OU1.L + HYS.1 ≦ Display value
HL		OU1.L ≧ Display value / OU1.H ≦ Display value	OU1.L + HYS.1 ≦ Display value / OU1.H - HYS.1 ≧ Display value
HL-G		OU1.L ≦ Display value ≦ OU1.H + HYS.1	OU1.L - HYS.1 ≧ Display value / OU1.H + HYS.1 ≦ Display value

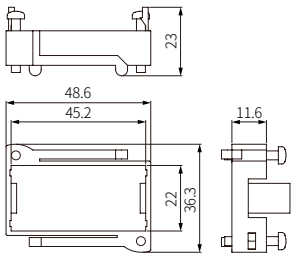
Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.

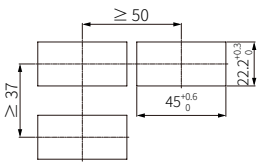


01) Except indicator

■ Bracket



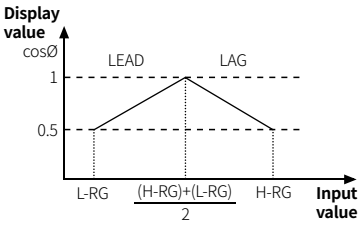
■ Panel cut-out



Power Factor Display

- Power factor display is only available for DC input specifications.
- This function displays LEAD and LAG by analog output signal from the power factor transducer.
  - LEAD: current phase leads voltage phase
  - LAG: current phase lags behind voltage phase
- It is available to accept several outputs of the power factor transducer by high / low-limit input value analog output value setting in the power factor transducer.
- Power factor value is displayed as cosØ value -0.50 (LEAD) to 1.00 to 0.50 (LAG).
- Setting range: from min. to max. selected value from input range

- E.g.: When setting 200V in input range, high / low-limit input value are available to set from -199.9.0 to 200.0. When setting 20V, high / low-limit input value are available to set from -20.00 to 20.00.
  (high-limit input value > low-limit input value)



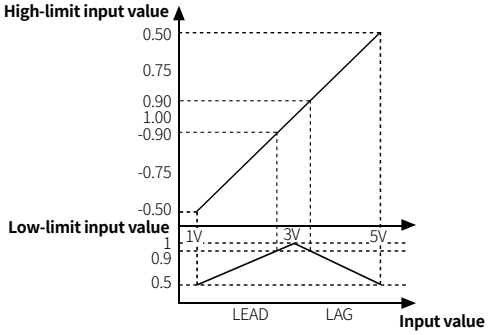
	Default	
	H-RG	L-RG
M4NN-DV	600	-600
M4NN-DA	5.00	-5.00

- E.g. 1: When the output of the power factor transducer is DC 4 - 20 mA

1. Connect the output to the input terminal 5 (+), 7 (-) of this unit, then set input range as 4-20.
2. When setting the input range as 4-20, low-limit input value is set as 4.00 and high-limit input value is set as 20.00 automatically.
3. If measured input is 4 mA, it displays -0.50. For 12 mA measured input, it displays 1.00 and for 20 mA, it displays 0.50.

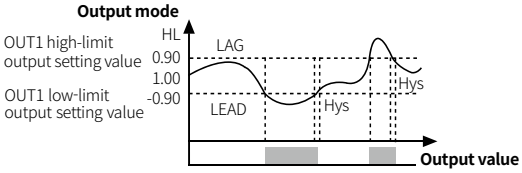
- E.g. 2: When the output of the power factor transducer is 1 - 5 VDC⎓

1. Connect the output to the input terminal 5 (+), 7 (-) of this unit, then set the input range as 10V.
2. Set the minus input display parameter to OFF.
3. Set high-limit input value as 5.00 and low-limit input value as 1.00 for the output of the power factor transducer.
4. If measured input is 1 V, it displays -0.50. For 3 V measured input, it displays 1.00 and for 5 V, 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

1. Set OUT1 output operation mode as HL at parameter 2 group.
2. Set OUT1 high-limit output setting value as 0.90 and OUT1 low-limit output setting value as -0.90 at parameter 0 group.
3. OUT2 output operation mode is also same setting as OUT1 output operation mode.



Minus Input Display

- Minus input of DC voltage / current model is unnecessary, or the input value near the 0 display value is unstable so that the minus value does not appear.
  When the minus input display is set to OFF, the low-limit value of the input range is set to 0, and the minus input value is displayed as 0.
- When minus input display is OFF,
  Setting value 0 change parameters: low-limit scale, low-limit input value, OUT1 / 2 low-limit output setting value
  Setting value reset parameters: high-limit display value gradient correction, low-limit display value deviation correction, OUT1 / 2 output operation mode, OUT1 / 2 hysteresis, OUT1 / 2 high-limit output setting value

Function Description

■ Display method: frequency

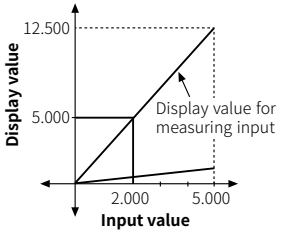
It measures input signal frequency when it is AC input.
In order to measure frequency normally, input signal, over 10 % F.S. of the rated input range, should be supplied. Otherwise, it may not be measured normally.
The measurement range differs depending on the decimal point position.
It is available to adjust the high-limit display value gradient correction and exponent of INB at parameter setting.

- Accuracy of frequency measurement: below 1 kHz: F.S. ± 0.1 % rdg ± 2-digit,
  from 1 k to 10 kHz: F.S. ± 0.3 % rdg ± 2-digit

■ High-limit display value gradient correction

This function is to correct a gradient of high / low-limit scale value.
And also can be used as correction function of high-limit scale value.
Adjustment range is setting value and multiply current gradient.

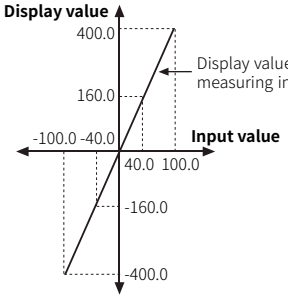
- E.g.: To display 5.000 when 2 VAC~ for input range 0 - 10 VAC~



H-SC	L-SC	INB.H	Result
12.500	0.000	1.000	Disable
6.250	0.000	2.000	2 VAC~ = 5.000
3.125	0.000	4.000	
2.500	0.000	5.000	

1. Select input range = 10V, decimal point position = 0.000 for measurement input in Parameter 1.
2. It has to be 12.500 at high-limit scale for 5 VAC~ in order to display 5.000 for 2 VAC~.
   But it is disable due to setting range is 9.999.
3. In this case, set as high-limit display value gradient correction × high-limit scale = 12.500.

- E.g.: To display -160.0 when -40 mA for input range 0 - 100 mA



H-SC	L-SC	INB.H	Result
400.0	-400.0	1.000	-40 mA = -160.0
200.0	-199.9	2.000	
100.0	-100.0	4.000	
80.0	-80.0	5.000	

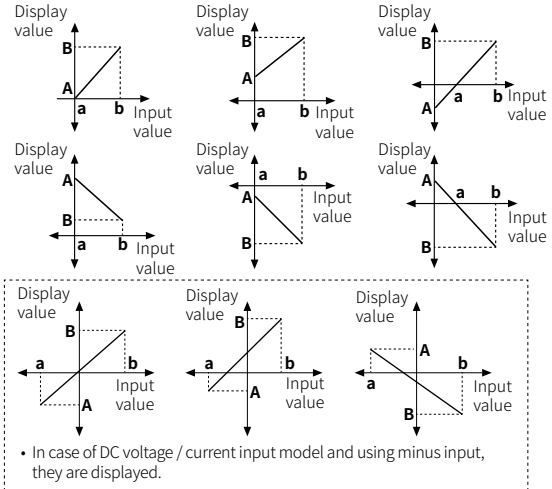
1. Select input range = 0.1A, decimal point position = 000.0 for measurement input in Parameter 1.
2. If set to display -40 mA as -160.0, the low-limit scale value ×high-limit display value gradient correction at -100 mA must be -400.0. But it is disable due to setting range is 9.999.
3. In this case, set as high-limit display value gradient correction × high-limit scale = 400.0 and high-limit display value gradient correction × low-limit scale = -400.0.

- If the low-limit scale is set first set the high-limit scale = - (low-limit scale).
  If the high-limit scale is set first set the low-limit scale = - (high-limit scale).

■ High / Low-limit scale value

This function is to display setting of particular high / low-limit value in order to display high / low-limit value of measured input.
If measured inputs are a and b and particular values are A and B, it will display a = A, b = B as below graphs.

- When changing input range, it is changed automatically as factory default display range of the input range.



- In case of DC voltage / current input model and using minus input, they are displayed.

■ Zero adjustment

It adjusts the display value of the optional configured input value as zero by force.
Zero point error can be adjusted with 2 ways as below.
1. Direct input correction value at low-limit display value deviation correction parameter.
2. Press the [◀] + [▲] keys for 3 sec in RUN mode.

■ Error correction

It corrects display value error of measured input.

Display value = (Measured value × High-limit display value gradient correction) + Low-limit display value deviation correction

- E.g.: When the input range 0 to 500 VDC⎓ and the display range is 0 to 500.

If the low-limit display value is 1.2 to 0 VDC⎓ input, set -12 as deviation correction value to display 0.0 by adjusting offset of the low-limit display value.
The display value to 500 VDC⎓ measured input varies by adjusting the offset of low-limit display value.
If this display value is 501.0, calculate 500.0 / 501.0 (desired display value / the display value), and set the 0.998 correction value as the high-limit display value gradient correction parameter to display 500.0 by adjusting gradient of high-limit value.

■ Display cycle

In some applications the measured input may fluctuate which in turn causes the display to fluctuate.
By adjusting the display cycle delay function time the operator can adjust the display time. For example, if the operator sets the display cycle time to 4 sec, the display value displayed will be the average input value over 4 sec and also will show any changes if any every 4 sec.

■ Max. / Min. peak value

It monitors max./min. peak value of display value based on the current displays value and then displays the data at the parameters.
When pressing any one of front keys at the parameters, the monitored data is initialized.
Set the delay time at peak monitoring delay time parameter in order to prevent malfunction caused by initial overcurrent or overvoltage, when monitoring the peak value.

Segment Table

The segments displayed on the product indicate the following meanings. It may differ depending on the product.

7 segment				11 segment				12 segment				16 segment			
0	0	I	I	0	0	I	I	0	0	I	I	0	0	I	I
1	1	J	J	1	1	J	J	1	1	J	J	1	1	J	J
2	2	K	K	2	2	K	K	2	2	K	K	2	2	K	K
3	3	L	L	3	3	L	L	3	3	L	L	3	3	L	L
4	4	M	M	4	4	M	M	4	4	M	M	4	4	M	M
5	5	N	N	5	5	N	N	5	5	N	N	5	5	N	N
6	6	O	O	6	6	O	O	6	6	O	O	6	6	O	O
7	7	P	P	7	7	P	P	7	7	P	P	7	7	P	P
8	8	Q	Q	8	8	Q	Q	8	8	Q	Q	8	8	Q	Q
9	9	R	R	9	9	R	R	9	9	R	R	9	9	R	R
A	A	S	S	A	A	S	S	A	A	S	S	A	A	S	S
b	B	T	T	b	B	T	T	b	B	T	T	b	B	T	T
C	C	U	U	C	C	U	U	C	C	U	U	C	C	U	U
d	D	V	V	d	D	V	V	d	D	V	V	d	D	V	V
E	E	W	W	E	E	W	W	E	E	W	W	E	E	W	W
F	F	X	X	F	F	X	X	F	F	X	X	F	F	X	X
G	G	Y	Y	G	G	Y	Y	G	G	Y	Y	G	G	Y	Y
H	H	Z	Z	H	H	Z	Z	H	H	Z	Z	H	H	Z	Z

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