Autonics

PANEL METER
MT4Y SERIES
M A N U A L

Thank you very much for selecting Autonics products.
For your safety, please read the following before using.

■ Caution for your safety

※Please keep these instructions and review them before using this unit.

※Please observe the cautions that follow;
⚠ **Warning** Serious injury may result if instructions are not followed.
⚠ **Caution** Product may be damaged, or injury may result if instructions are not followed.

※The following is an explanation of the symbols used in the operation manual.
⚠ caution:Injury or danger may occur under special conditions.

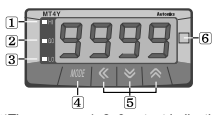
⚠ Warning

1. **In case of using this unit with machinery(Ex: nuclear power control, medical equipment, ship, vehicle, train, airplane, combustion apparatus, safety device, crime/disaster prevention equipment, etc) which may cause damages to human life or property, it is required to install fail-safe device.**
   It may cause a fire, human injury or damage to property.
2. **It must be mounted on Panel.**
   It may give an electric shock.
3. **Do not connect, inspect and repair terminals when it is power on.**
   It may give an electric shock.
4. **Do not disassemble and modify this unit, when it is required. Please contact us.**
   It may cause an electric shock and a fire.
5. **Please check the number of terminal when connecting power line or measured input.**
   It may cause a fire.

⚠ Caution

1. **This unit shall not be used outdoors.**
   It might shorten the life cycle of the product or give an electric shock.
2. **When connecting wire, 20AWG(0.50mm²) should be used and tighten screw bolt on terminal block with 0.74N·m to 0.90N·m strength.**
   It may cause a malfunction or fire due to contact failure.
3. **Please observe the rated specification.**
   It might shorten the life cycle of the product and cause a fire.
4. **Do not use beyond of the rated switching capacity of Relay contact.**
   It may cause insulation failure, contact melt, contact failure, relay broken and fire etc.
5. **In cleaning the unit, do not use water or an oil-based detergent.**
   It might cause an electric shock or fire.
6. **Do not use this unit in place where there are flammable or explosive gas, humidity, direct ray the sun, radiant heat, vibration and impact etc.**
   It may cause a fire or explosion.
7. **Do not inflow dust or wire dregs into the unit.**
   It may cause a fire or mechanical malfunction.
8. **Please connect properly after checking the polarity of measuring terminals.**
   It may cause a fire or explosion.

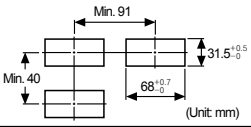
■ Front panel identification



1 HI: High output indication of preset
2 GO: Go output indication of preset
3 LO: Low output indication of preset
4 MODE: Mode Key
5 ▷ ▽ △: Control key
6 Unit label part

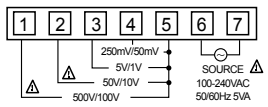
※There are no 1, 2, 3 output indication in Indicator type.

■ Panel cut-out

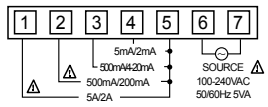


■ Terminal connection

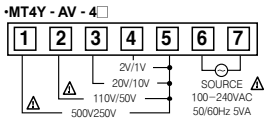
•MT4Y - DV - 4□



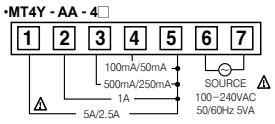
•MT4Y - DA - 4□



•MT4Y - AV - 4□

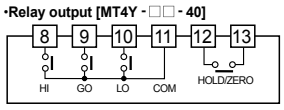


•MT4Y - AA - 4□

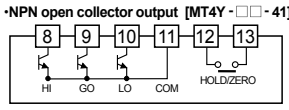


<Option>

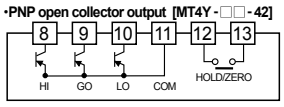
•Relay output [MT4Y - □□ - 40]



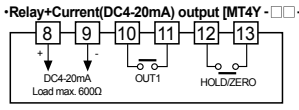
•NPN open collector output [MT4Y - □□ - 41]



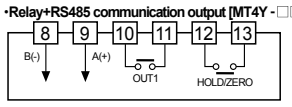
•PNP open collector output [MT4Y - □□ - 42]



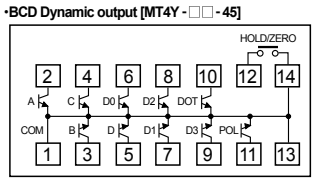
•Relay+Current(DC4-20mA) output [MT4Y - □□ - 43]



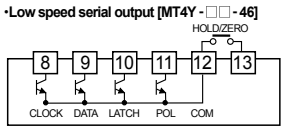
•Relay+RS485 communication output [MT4Y - □□ - 44]



•BCD Dynamic output [MT4Y - □□ - 45]

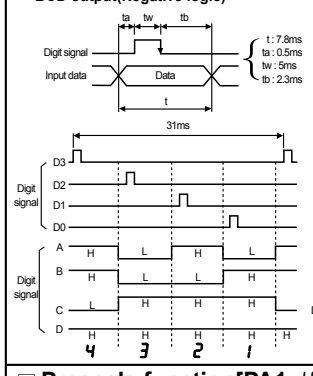


•Low speed serial output [MT4Y - □□ - 46]

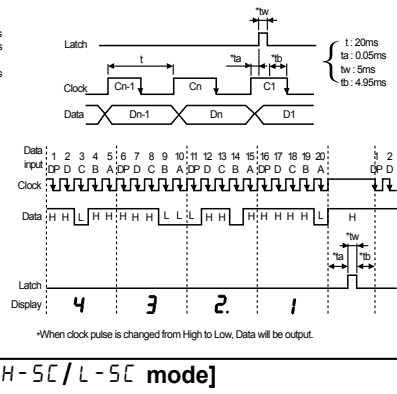


■ Time chart of Low-speed serial output and BCD output

◎BCD output(Negative logic)



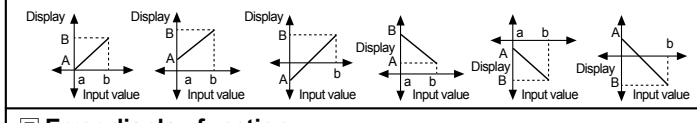
◎Low-speed serial output(Negative logic)



•When clock pulse is changed from High to Low, Data will be output.

■ Prescale function[PA1: H-SC / L-SC mode]

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



■ Error display function

Display	Description
HHHH	Flashes when measured input is exceeded the max.allowable input (110%)
LLLL	Flashes when measured input is exceeded the min.allowable input (-10%)
d-HH	Flashes when display input is exceeded H-SC setting value
d-LL	Flashes when display input is exceeded L-SC setting value
F-HH	Flashes when input frequency is exceeded the max. display value of measuring range
ouEr	Flashes when it exceeds zero range (±99)

※Error display is released automatically when it is in the measuring and display range.
※"LLLL" is displayed when the measured input is 4-20mA.
※After flashing "ouEr" 2 times when it exceeds the zero range, it returns to RUN mode.

■ Monitoring peak display value function

[PA 0: H.PEU / L.PEU mode, PA 2: PEUt mode]

It monitors max./min. value of display value based on current display value and then display the data in H.PEU mode and L.PEU mode of parameter 0. Set delay time(0 to 30 sec.) in PEUt mode of parameter 2 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 H.PEU and L.PEU mode of parameter 0, it will be initialized.
※Monitoring function is not indicated when setting the PEUt of parameter 2 is "00 S".

※The above specifications are subject to change without notice.

■ Specifications

Series	MT4Y
Power supply	100-240VAC 50/60Hz (90 to 110% of rated voltage)
Power consumption	5VA
Display method	7Segment LED Display(Red)
Display accuracy	23℃±5℃ ☞ DC Type: F.S.±0.1% rdg±2digit / AC Type: F.S.±0.3% rdg±3digit (Frequency: F.S.±0.1% rdg±2digit) F.S +0.3% rdg +3digit max. only for 5A terminal. -10℃ to 50℃ ☞ DC/AC Type: F.S.±0.5% rdg±3digit
Input	DC Voltage/Current, AC Voltage/Current, AC Frequency
Max. allowable input	110% F.S. for input spec.
A/D conversion method	Practical oversampling using successive approximation ADC
Sampling cycle	50ms (DC), 16.6ms (AC 60Hz) (1/12,000)
Max. indication range	-1999 to 9999 (4Digit)
Preset output	• Relay output ☞ Contact capacity:250VAC 3A, 30VDC 3A/Contact composition:N.O(1a) • NPN/PNP Open Collector output ☞ 12-24VDC ±2V 50mA Max. (Load resistance)
Sub output (Transmission output)	• RS485 communication output ☞ Baud rate: 1200/2400/4800/9600, Transmission method: 2 wires half duplex, Tuning method: Asynchronous method, Protocol: Modbus typ • Serial/BCD output ☞ NPN Open collector output, 12-24VDC Max. 50mA(Resistive load) • DC4-20mA output ☞ Resolution: 12,000division (Load resistance max. 600Ω), Response time:Max. 450ms
AC measuring function	Selectable RMS or AVG
Frequency measuring function	Measurement range:0.100 to 9999Hz(Fixed decimal point type)
Hold function※1	Includes(Outer hold function)
Environment: Ambient temperature	-10 to 50℃, Storage: -20 to 60℃
Environment: Ambient humidity	35 to 85%RH, Storage: 35 to 85%RH
Insulation type※2	⊡
Approval	CE cULus
Unit weight	Approx. 134g

※1: The indicator type has no Hold function.
※2: "⊡" Mark indicated that equipment protected throughout by double insulation or reinforced insulation.
※Environment resistance is rated at no freezing or condensation.

■ Specification of measured input and range

Type	Measured input and range		Input impedance	Standard [Stnd] Display range [Fixed]	Prescale [SCAL] Display range [Variable]
DC Volt	0-500V	[500u]	4.33315MΩ	0.0 to 500.0(Fixed)	-1999 to 9999(Variable) -199.9 to 999.9(Variable) -19.99 to 99.99(Variable) -1.999 to 9.999(Variable) (Display point will be changed according to decimal point position.) ※Please wire proper terminal to its max. input voltage within 30 to 100% of input terminal. When it is higher than input 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%.
	0-100V	[100u]	4.33315MΩ	0 .0 to 100.0(Fixed)	
	0-50V	[50u]	433.15kΩ	0.00 to 50.00(Fixed)	
	0-10V	[10u]	433.15kΩ	0.00 to 10.00(Fixed)	
	0-5V	[5u]	43.15kΩ	0.000 to 5.000(Fixed)	
	0-1V	[1u]	43.15kΩ	0.000 to 1.000(Fixed)	
	0-250mV	[0.25u]	2.15kΩ	0.00 to 250.00(Fixed)	
	0-50mV	[50mu]	2.15kΩ	0.00 to 50.00(Fixed)	
DC Ampere	0-5A	[5A]	0.01Ω	0.000 to 5.000(Fixed)	
	0-2A	[2A]	0.01Ω	0.000 to 2.000(Fixed)	
	0-500mA	[0.5A]	0.1Ω	0.0 to 500.0(Fixed)	
	0-200mA	[0.2A]	0.1Ω	0.0 to 200.0(Fixed)	
	0-50mA	[50mA]	1.0Ω	0.00 to 50.00(Fixed)	
	4-20mA	[4-20]	1.0Ω	4.00 to 20.00(Fixed)	
	0-5mA	[5mA]	10.0Ω	0.000 to 5.000(Fixed)	
	0-2mA	[2mA]	10.0Ω	0.000 to 2.000(Fixed)	
AC Volt	0-500V	[500u]	4.987MΩ	0.0 to 500.0(Fixed)	
	0-250V	[250u]	4.987MΩ	0.0 to 250.0(Fixed)	
	0-110V	[110P]	1.087MΩ	0.0 to 440.0(Fixed)	
	0-50V	[50u]	1.087MΩ	0.00 to 50.00(Fixed)	
	0-20V	[20u]	200kΩ	0.00 to 20.00(Fixed)	
	0-10V	[10u]	200kΩ	0.00 to 10.00(Fixed)	
	0-2V	[2u]	20kΩ	0.000 to 2.000(Fixed)	
	0-1V	[1u]	20kΩ	0.000 to 1.000(Fixed)	
AC Ampere	0-5A	[5A]	0.01Ω	0.000 to 5.000(Fixed)	
	0-2.5A	[2.5A]	0.01Ω	0.000 to 2.500(Fixed)	
	0-1A	[1A]	0.05Ω	0.000 to 1.000(Fixed)	
	0-500mA	[0.5A]	0.1Ω	0.0 to 500.0(Fixed)	
	0-250mA	[0.25A]	0.1Ω	0.0 to 250.0(Fixed)	
	0-100mA	[0.1A]	0.5Ω	0.0 to 100.0(Fixed)	
	0-50mA	[50mA]	0.5Ω	0.00 to 50.00(Fixed)	

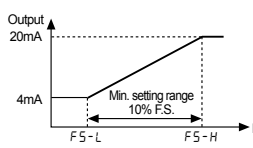
■ Initialization function

It initializes parameter setting state.
Press ◁+▽+△ keys simultaneously for over 5 sec. in RUN mode, it returns to factory default value.

EX) RUN → (Press ◁+▽+△ for over 5 sec.) → InIt → ◁ ▽ → no → ▽ → YES → MODE

■ Current output(DC4-20mA) scale adjustment function [PA 2: FS-H / FS-L mode]

It sets current output for preset display value at the output current 4-20mA DC.
It sets display value for 4mA in FS-L and 20mA in FS-H and set range between FS-H and FS-L should be 10% F.S.(When it set as under 10% F.S., it changed as over 10% F.S. automatically.)Preset display value is fixed to output as 4mA at under FS-L and 20mA at over FS-H.



■ Error correction function [PA 1: InbH / InbL mode]

It corrects display value error of measured input.
InbL: ±99 (Adjust deviation of low value)
InbH: 5.000 to 0.100(Correct gradient(%) of high value)
Display value=(Measured value × InbH)+InbL
Ex)When the user desires measured input specification is 0 to 500V and display value is 0 to 500.0, it is able to remove the offset of low display value. When low display value is "1.2" in 0V input, set -12 as offset correcting value in InbL. Display value for measured input(500V) is decided by offset adjustment of low value. In case display value is "501.0" display value will be 500.0 by adjusting the gradient of high display value if 0.998 of correcting value is set at InbH by calculating 500.0/ 501.1 (Target display value/Current display value)
※The offset correction range of InbL is within -99 to +99 regardless of dot.

■ Zero adjustment function

It sets the preset indication value as zero when min. input is supplied into the measuring terminal, zero error can be adjusted with 3 ways as below.
When zero adjustment adjustment with front key and Hold terminal is finished normally, zero of measuring terminal is displayed and the adjusted value is saved in InbL automatically.

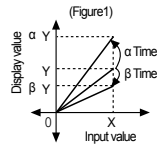
Operation	Input correction value	Front key	Input external signal
Description	PA 1: Direct input correction value method at InbL mode	Press both ◁, △ keys for 3 sec. at the measuring mode.	Short-circuit external Hold terminal no.12, 13 over min.50m.

※Refer to description "■ Error correction function, ■ Error display function, ■Parameter 2" for function and error.

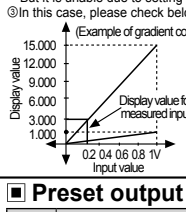
■ Gradient correction function [PA 1: InbH mode]

It corrects a gradient of prescale value and display value.
(Figure 1)Display value Y can be adjusted as α, β times against X input value by correction function [InbH] and used as correction function of max. display value [H-SC]. Adjustment range is 0.100 to 5.000 and multiply current gradient by the value.
Ex)Input:200mVDC, Display:3.000 for MT4Y-DV type
①Select 0-1VDC for measured input in Parameter 1.
②Standard specification in input: 0-1VDC and 1.000 therefore it has to be 15.000(H-SC) for 1VDC(Input) in order to display 3.000 for 200mVDC(Input).
But it is unable due to setting range is 9.999.
③In this case, please check below chart. Please set as InbH × H-SC = 15.000

(Figure1)



(Example of gradient correction)



Setting method	H-SC	L-SC	InbH	Remark
①	Unavailable	0.000	1.000	-
②	7.500	0.000	2.000	In this case, any setting methods display same display value.
③	5.000	0.000	3.000	
④	3.750	0.000	4.000	
⑤	3.000	0.000	5.000	

■ Preset output mode [PA 2: oUtt mode]

Mode	Output operation	Description
	H5Et / L5Et	H: Hysteresis
oFF		No output
L.St	GO / LO	If it is equal or lower than Low setting value, LO output is ON. If it is higher than Low setting value, GO output is ON.
H.St	HI / GO	If it is equal or higher than High setting value, HI output is ON. If it is equal or lower than High setting value, GO output is ON.
LH.St	HI / GO / LO	LO output is ON when it is equal or lower than Low setting value. HI output is ON when it is equal or higher than High setting value. GO output is ON when it is higher than Low setting value, and lower than High setting value.
HH.St	HI / GO / LO	LO output is ON when it is equal or higher than Low setting value. HI output is ON when it is equal or higher than High setting value. GO output is ON when it is lower than Low/High setting value.
LL.St	HI / GO / LO	LO output is ON when it is lower with Low setting value. HI output is ON when it is equal or lower than High setting value. GO output is ON when it is higher than Low/High setting value.
Ld.St	GO / LO	It is operated same with L5t but LO output does not operate under initial Low set value, and it is ON from under next Low setting value. If this is higher than Low setting value, GO output will be ON.

※H5Et / L5Et is displayed according to the setting of output operation mode, when user set "oFF", H5Et / L5Et does not displayed.
※RS485 / DC4-20mA provide L5t only.
※BCD Dynamic output / Low speed serial output are not available.

■ Display cycle delay function [PA 2: dI 5.t mode]

In some applications the measured input may fluctuate which in turn causes the display to fluctuate. By adjusting the display cycle delay function time in the dI 5.t mode in parameter 2, 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 displayed will be the average input value over 4 sec. and also will show any changes if any every 4 sec.

■ Parameter

Parameter	Display		Function	Note
PA1 (Parameter 1)	In-t	Input type	Selectable RMS/AVG in AC type	Available AC type only.
	In-r	Input range	Selection of input range	-
	dISP	Display	Selection of display type	Selectable: Stnd/SCAL/FrE9
	Stnd	Standard	Standard scale range	Display max. display value of Stnd
	FrE9	Frequency	Frequency display	Available AC type only.
	SCAL	Scale	Scale range	These are displayed in SCAL only and set max/min. display value(-1999 to 9999).
	H-SC	High scale	Set max. value of display range	
	L-SC	Low scale	Set min. value of display range	
	dot	Dot	Set decimal point position	It is displayed in SCAL/FrE9 only and set the position.
	InbH	Input bias high	Correct high-limit value of display value	Stnd/SCAL: Correction range: 0.100 to 5.000 FrE9: Correction range: 0.100 to 9.999
	InbL	Input bias low	Correct low-limit value of display value	Set range:-99 to +99
	InbE	Input bias exponent	Set display index of frequency mode	Set range: 10^{-2}/10^{-1}/10^{0}/10^{1}
PA2 (Parameter 2)	oUtt	Out type	Set operation mode of preset output	Selectable oFF/L5t/H5t/LH5t/HH5t/LL5t/Ld5t
	HYS	Hysteresis	Set hysteresis value	Set range: 1 to 10% F.S.
	StAt	Startup compensation time	Set startup compensation time	Set range: 0.0 to 99.9 sec.
	PEUt	Peak time	Set monitoring delay time for peak value(sec)	Set range:00sec to 30sec
	dI 5t	Display time	Set sampling time(sec.)	0.1 to 5.0 sec.(Variable by 0.1 sec.)
	ZEro	Zero key	Set usage of front side zero adjustment key	no: Set usage of front side zero adjustment key YES: Usage of front side zero adjustment key
	Euin	Event input	Set external terminal(12, 13) function	HoLd: Use external terminal as Hold terminal ZEro: Use external terminal as zero point adjustment terminal
	FS-H	Full scale high	Set the upper value output point or PV output	Min. set range: Min. 10% F.S.
	FS-L	Full scale low	Set the lower value output point or PV output	Max. set range: Max. FS-H 10%
	AdrS	Address	Set communication address	Set range:01 to 99
	bPS	Bit per second	Set baud rate(bps)	Selectable 1200/2400/4800/9600
	PrtY	Parity bit	Set parity bit	Selectable nonE/EuEn/odd
	5tP	Stop bit	Set stop bit	Selectable 1/2
	rSUt	Response waiting time	Set response wating time	Set range: 5 to 99
	LoC	Lock	Set lock function	Selectable oFF/LoC 1/LoC2/LoC3
PA0 (Parameter 0)	H.SEt	High set	Set high setting value	Setting range can be set within indication range of Stnd/SCAL
	L.SEt	Low set	Set low setting value	
	H.PEU	High peak	Max. value by data monitoring	Return to initial status by pressing ◁ ▽ or △ key.
	L.PEU	Low peak	Min. value by data monitoring	

■ Parameter setting

RUN → (MODE key 2sec) → PA1 → (MODE key 2sec) → PA2

※Press MODE key for 2 sec. in RUN mode, [PA1](Parameter 1) is displayed.
※Press MODE key for 4 sec. in RUN mode, [PA2] is displayed after [PA1].
When MODE key is pressed continually, it stops displaying at [PA2].
※It is advanced to current display parameter releasing MODE key at [PA1] or [PA2].
※Press MODE key for 3 sec., it is returned to RUN mode at any position.
※After returning to RUN mode, if MODE key is pressed within about 2 seconds again, it is entered into [PA1] or [PA2] again.(Refer to the below each parameter setting description.)

■ Parameter 0

RUN → (MODE) → H5Et → (MODE) → L5Et → (MODE) → H.PEU → (MODE) → L.PEU

H5Et: Set preset High-limit value. (When set the preset only) ※Change to set with ◁ ▽ △ keys.
L5Et: Set preset Low-limit value.(When set the preset only) ※Change to set with ◁ ▽ △ keys.
H.PEU: It shows High-limit monitoring value (High Peak) in RUN mode. It is initialized by pressing ◁ ▽ △ key.
L.PEU: It shows Low-limit monitoring value (Low Peak) in RUN mode. It is initialized by pressing ◁ ▽ △ key

※When PEUt of Parameter2 is set as "00 S", monitoring function is not displayed.

■ Parameter 1

PA1 → (MODE) → In-r → (MODE) → dISP → (MODE) → In-t

Select measured input specification. (Refer to "■Specification of measured input and range".)
Set indication method for measured input. Setting type is Stnd↔SCAL↔FrE9, FrE9 is only displayed when it is AC.
Select measuring method when it is AC input. Selectable rms ↔ AVG

<Specification chart of measured input by each items>

Item	Range of measured input
MT4Y-DV	500u ⇄ 100u ⇄ 50u ⇄ 10u ⇄ 5u ⇄ 1u ⇄ 0.25u ⇄ 50mu ⇄ 500u
MT4Y-DA	5A ⇄ 2A ⇄ 0.5A ⇄ 0.2A ⇄ 50mA ⇄ 4-20 ⇄ 5mA ⇄ 2mA ⇄ 5A
MT4Y-AV	500u ⇄ 250u ⇄ 110P(☆) ⇄ 50u ⇄ 20u ⇄ 10u ⇄ 2u ⇄ 1u ⇄ 500u
MT4Y-AA	5A ⇄ 2.5A ⇄ 1A ⇄ 0.5A ⇄ 0.25A ⇄ 0.1A ⇄ 50mA ⇄ 5A

※(☆) 110P is standard specification of 440/110P.T.

<When dI 5P is Stnd>
Stnd → (MODE) → It shows max.display value of standard specification. Display value is fixed.

<When dI 5P is SCAL>
dot → (MODE) → Set decimal point position 0↔0.0↔0.00↔0.000
H-SC → (MODE) → Set display value for max. input of measured input
L-SC → (MODE) → Set display value for min. input of measured input
InbH → (MODE) → Gradient adjustment setting range of the upper display value for max. input: 0.100 to 5.000
InbL → (MODE) → Variation adjustment setting range of the lower display value for min. input: -99 to 99

<When dI 5P is FrE9>
dot → (MODE) → Set frequency measuring range (Refer to "■Measuring AC frequency function".)
InbH → (MODE) → Gradient adjustment setting range of the upper display value for max. input: 0.100 to 9.999
InbE → (MODE) → Set index for frequency display: 10-2↔10-1↔10-0↔10 1

■ Parameter 2

PA2 → (MODE) → oUtt → (MODE) → HYS → (MODE) → StAt → (MODE) → PEUt → (MODE) → dI5t → (MODE) → ZEro → (MODE) → Euin → (MODE) → FS-H → (MODE) → FS-L → (MODE) → AdrS → (MODE) → bPS → (MODE) → PrtY → (MODE) → 5tP → (MODE) → rSUt → (MODE) → LoC

oUtt: Set it when executing preset function it and there are 6 type of preset mode. oFF↔L5t↔H5t↔LH5t↔HH5t↔LL5t↔Ld5t↔oFF Refer to "■Preset output mode."
HYS: It is only displayed when selecting preset function. Set preset hysteresis. Set range : 10% F.S.
StAt: Set startup compensation time. Set range: 0.0 to 99.9 sec.
PEUt: Set monitoring delay time. Set range : 00 to 30sec.
dI5t: Set display period and also variable sets by 0.1s within 0.1s to 5.0s.
ZEro: Enable zero adjustment by front key operation to select YES. Press both ◁+△ keys simultaneously in 3sec. The deviation value is saved in InbL automatically.
Euin: Select between hold input by No. 12, 13 terminal or zero point setting by external signal. HoLd: Display value holding, ZEro: Zero point adjustment by hold terminal.
FS-H: Set high-limit value for the DC20mA output point of PV output. ※When changing input range and prescale mode, FS-H, FS-L SV is changed automatically as max. and min. value of input range.
FS-L: Set low-limit value for the DC4mA output point of PV output.
AdrS: Set address of RS485 communication. Set range : 01 to 99
bPS: Select baud rate of RS485 communication. Selectable 9600 ↔ 4800 ↔ 2400 ↔ 1200
PrtY: Select parity bit of RS485 communication. Selectable nonE / EuEn / odd
5tP: Select stop bit of RS485 communication. Selectable 1 / 2
rSUt: Set response waiting time of RS485 communication. Set range: 5 to 99
LoC: Set key lock function and select from 4 kinds. Selectable oFF ↔ LoC 1 ↔ LoC2 ↔ LoC3 ↔ oFF

oFF	No key lock function	LoC2	Parameter 1, 2 lock
LoC 1	Parameter 1 lock	LoC3	Parameter 0, 1, 2 lock

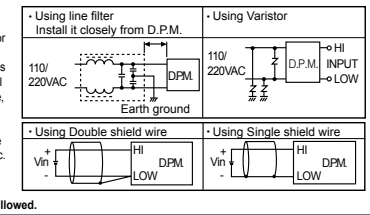
■ Change the parameter setting value

1. Press MODE key continuously in RUN mode, then release the MODE key at the parameter. (Refer to "■Parmeter setting.")
2. Press MODE key at the parameter in order to change the mode of parameter.(Refer to "■Parmeter")
3. Current setting value and mode in parameter flash repeatedly.
   Ex) In-r ↔ 500u
   It shows that current measured input is 500V.
4. When the current setting value and mode flash, if press ◁ ▽ △ key, only the current setting value flashes.
   Ex) In-r ↔ 500u (◁) → 500u
   It shows that setting value is changeable as flashing it.
5. When the setting value flashes, change the setting value by using ▽ or △ key
   Ex) In-r ↔ 500u (◁) → 500u (▽) → 5u
   1 10P ↔ 50u ↔ 5u
   It shows how to change the measured input of AC Type.
6. When confirming the setting value with MODE key, the changed setting value flashes 2times and enters into next setting.
7. It returns RUN mode from parameter by pressing MODE key for 3sec.

■ Caution for using

1. Allowable installation environment
   ①If shall be used indoor ②Altitude Max. 2000m ③Pollution Degree 2 ④Installation CatergoryII
2. Please use the terminal(M3.5, Max.7.2mm) when connecting the AC power supply.
3. Please use separated line from high voltage line or power line in order to avoid inductive noise.
4. Please install power switch or circuit breaker in order to cut off the power supply.
5. The switch or circuit breaker should be installed near by users for safety.
6. 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.)
7. When input is applied, if "HHHH" or "LLLL" is displayed, there is some problem with measured input, please check the line after power off.
8. Noise inflowing from power line can cause serious problem for D.P.M.(Digital Panel Meter) driving by AC power supply. Even though there is condenser for protecting noise between lines at primary side of power transformer, but it is very difficult to install protection components at small size product like D.P.M. Therefore, please use noise absorber circuit such as line filter, varistor in external lines when voltage failure is occurred by power relay, magnet S/W and high frequency equipment are operated in same line or surge is occurred by spark of high voltage or thunder etc.
9. Input line: Shield wire must be used when the measuring input line is getting longer in the place occurring lots of noise.

Max. 7.2mm



※It may cause malfunction if above instructions are not followed.

■ Major products

- Proximity sensors
- Area sensors
- Door/Door side sensors
- Counters
- Rotary encoders
- Power controllers
- Panel meters
- Graphic/Logic panels
- Temperature controllers
- Tachometer/Pulse(Rate) meters
- Temperature/Humidity transducers
- Stepping motors/drivers/motion controllers
- Laser marking system(CO_2, Nd: YAG)
- Laser welding/soldering system
- Photoelectric sensors
- Fiber optic sensors
- Pressure sensors
- Timers
- Display units
- Sensor controllers

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