Autonics

PANEL METER
MT4W SERIES

INSTRUCTION MANUAL

Thank you for choosing our Autonics products.
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.

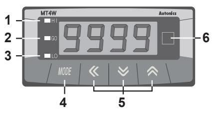
⚠ Warning

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.
2. **When connecting the power input and relay output cables, use AWG20 (0.05mm2) cables and make sure to tighten the terminal screw bolt above 0.74N.m 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 electric shock or shorten the life cycle of the unit.
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 these 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 explosion.
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.

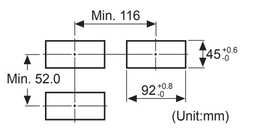
■ Front Panel Identification



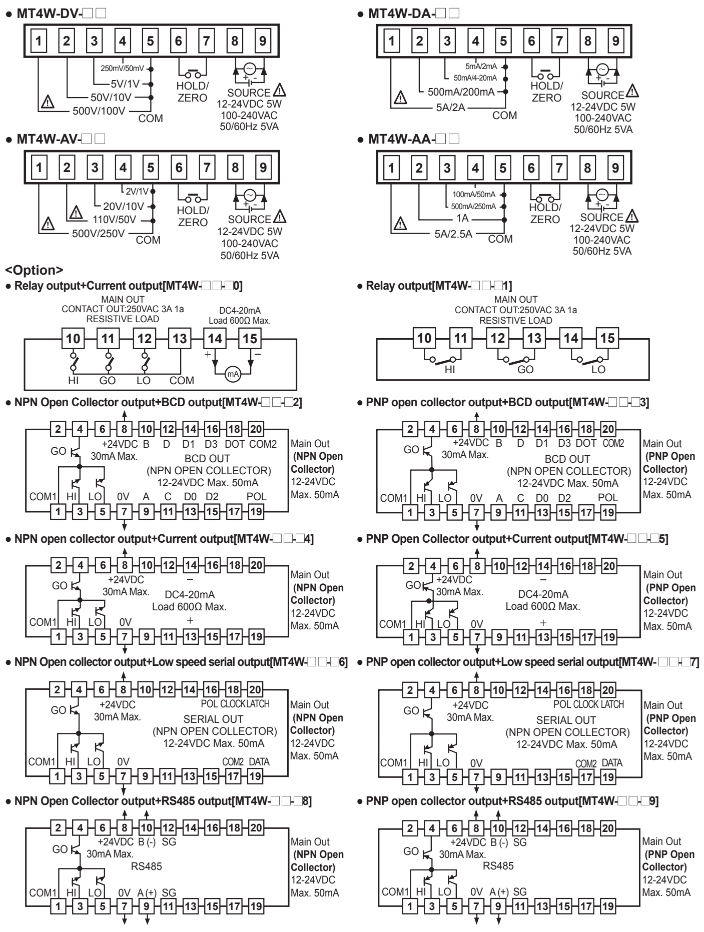
1. **HI:** High output indication of preset
2. **GO:** GO output indication of preset
3. **LO:** Low output indication of preset
4. **MODE**: MODE Key
5. **《 ∨ ∧**: Control key
6. Unit label part

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

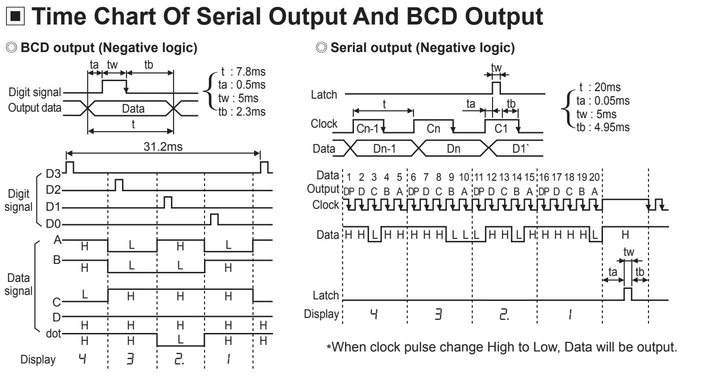
■ Panel Cut-Out



■ Terminal Connection

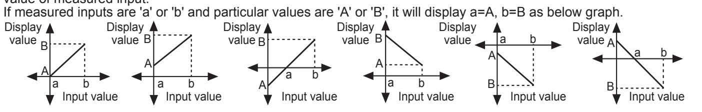


■ Time Chart Of Serial Output And BCD Output



■ Prescale Function [PA1 : H-SC/L-SC]

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 graph.



■ Error Display Function

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

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

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

■ Specifications

Model		MT4W-□□-4□	MT4W-□□-1□
Power supply		100-240VAC 50/60Hz	12-24VDC
Allowable voltage range		90 to 110%	
Power consumption		5VA	5W
Display method		7 Segment LED display (red) (Character height: 14.2mm)	
Display accuracy		23℃±5℃ - DC Type: F.S.±0.1% rdg±2digit / AC Type: F.S.±0.3% rdg±3digit DC/AC Type: 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% for each measured input range	
A/D conversion method		Practical over sampling using successive approximation ADC.	
Sampling cycle		DC type: 50ms, AC type: 16.6ms	
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, Communication method : 2-wire half duplex,Synchronous method: Asynchronous method , Protocol : Modbus type • Serial/BCD output - NPN Open collector output, 12-24VDC Max. 50mA (Resistive load) • DC4-20mA output - Resolution: 12,000 division (Load resistance max. 600Ω), Response time:Max. 450ms	
Insulation resistance		Min. 100MΩ (at 500VDC megger) between external terminal and case	
Dielectric stength		2,000VAC for 1minute between external terminal and case	
Noise stength		±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 X, Y, Z direction for 2 hours	
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz (for 1 min.) in each X, Y, Z direction for 10 min.	
Shock	Mechanical	100m/s² (approx. 10G) in each X, Y, Z direction for 3 times	
	Malfunction	300m/s² (approx. 30G) in each X, Y, Z direction for 3 times	
Relay life cycle	Mechanical	Min. 20,000,000 operations	
	Malfunction	Min. 100,000 operations (250VAC 3A Load current)	
Environ-ment	Ambient temperature	-10 to 50℃, Storage: -20 to 60℃	
	Ambient humidity	35 to 85%RH, Storage: 35 to 85%RH	
Insulation type		Double insulation or reinforced insulation (Mark: ▣ , dielectric strength between the measuring input part and the power part: 1kV)	
Approval		CE cULus	CE
Weight※1		Approx. 326g (approx. 211g)	

※1: The weight includes packaging. The weight in parentheses is for unit only.
※ Environment resistance is rated at no freezing or condensation.

■ Specification Of Measured Input And Range [PA 1: In-r]

Type	Measured input and range		Input impedance	Display range [Stnd]
DC Volt	0-500V	[500u]	4.33MΩ	0.0 to 500.0 (fixed)
	0-100V	[100u]	4.33MΩ	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	0.0 to 250.0 (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]	4.98MΩ	0.0 to 500.0 (fixed)
	0-250V	[250u]	4.98MΩ	0.0 to 250.0 (fixed)
	0-110V	[110P]	1.08MΩ	0.0 to 440.0 (fixed)
	0-50V	[50u]	1.08MΩ	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)

Prescale Display range [SCAL]

dot	Display range
0	-1999 to 9999
0.0	-199.9 to 999.9
0.00	-19.99 to 99.99
0.000	-1.999 to 9.999

(Display range is variable according to decimal point position.)

※Please wire the proper terminal to its max. input within 30 to 100% of the input terminal.
When it is higher than input, it may cause terminal breakdown and HHHH appears. The accuracy is decreased when it is connected to the terminal under 30%.

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

■ Display Cycle Delay Function [PA 2 : dI S.t]

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 dI S.t of 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.

■ Monitoring Max./Min. Display Value Function

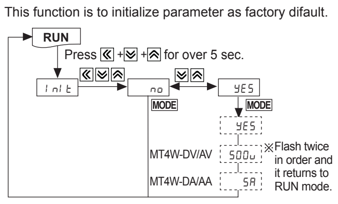
[PA 0: H.PEK/L.PEK, PA 2: PEK.t]

It monitors Max./Min. display value based on the current displays value and then displays the data at H.PEK, L.PEK of parameter 0. Set the delay time (0 to 30 sec.) at PEK.t of parameter 2 in order to prevent malfunction caused by initial over current or over voltage, when monitoring the peak value. Delay time is 0 to 30 sec. and it starts to monitor the peak value after the set time. When pressing any one of 《 ∨ ∧ key at H.PEK, L.PEK of parameter 0, the monitored data is initialized.

※Monitoring function is not displayed when the delay time is set as "00 5" at PEK.t of parameter 2.

■ Initialization Function

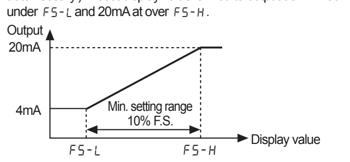
This function is to initialize parameter as factory difault.



■ Current Output (DC4-20mA) Scale adjustment function

[PA 2 : FS-H/FS-L]

It sets current output for the display value at the current output DC 4-20mA.
It sets display value for 4mA at FS-L and 20mA at FS-H and the range between FS-H and FS-L should be 10% F.S. (When it sets 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.



■ AC Frequency Measurement Function [PA1 : dI SP]

It measures input signal frequency when it is AC input. It uses fixed decimal point[PA1:dot], measured range can be changed by setting and measured range of decimal point position is as below chart.
It is available to adjust the upper gradient at [PA1:InbH] and [PA1:InbE]. In order to measure frequency normally, input signal, over 10% F.S. of measured range should be supplied. Please select the proper point of measurement terminal.

① Measured range

Decimal point position	0.000	0.00	0.0	0
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 1kHz to 10kHz, F.S ±0.3rdg ±2digit.
② InbH : 00.100 to 9.999 [Gradient adjustment of high value]
③ InbE : 10^{-2}, 10^{-1}, 10^{-0}, 10^{1} [Index adjustment of InbH]

■ Error Correction Function

[PA 1 : InbH/InbL]

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]
Diplay value= (Measured value × InbH) + InbL
When the measured range is 0 to 500V, and the display range is 0 to 500.0. If the low display value is "1.2" to 0V input, set -12 as the InbL value to display "0.0" by adjusting the offset of the low value.
The display value to the 500V measured input varies by adjusting the offset of the low value. If this display value is "501.0", calculate 500.0/501.0 (the desired display value/ the display value), and set the 0.998 correction value as the InbH to display "500.0" by adjusting the gradient of the high value.
※The offset correction range of InbL is within -99 to 99 for D^{0}, D^{-1} digit regardless of dicimal point.

■ Zero Adjustment Function

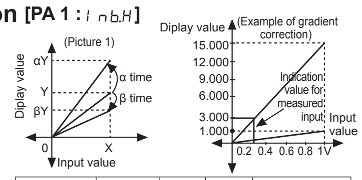
It adjusts the indication value of the optioanl configured input value as zero by force, zero point error can be adjusted with 3 ways as below.
When zero point adjustment with front key and Hold terminal is finished normally, zero point of measurement terminal is displayed and the adjusted value is saved at InbL automatically.

Operation	Input correc -tion value	Front side key	Input external signal
Description	PA 1: Direct input correction value method at InbL.	Press 《, ∧ key for 3sec. at the at RUN mode.	Short-circuit external Hold terminal no. 6, 7 over min. 50m.

※Refer to description "■ Error Correction Function", "■ Error Display Function", "■ Parameter 2" for function and error.

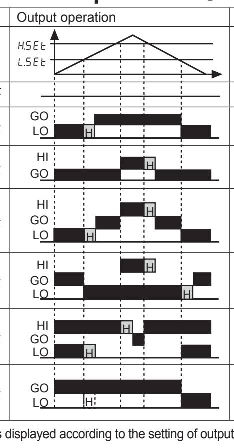
■ Gradient Correction Function [PA 1 : InbH]

It corrects the gradient of prescale value and display value. (Picture 1) Display value Y can be used 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.
Ex)Input:200mVDC, Display:3.000 for MT4W-DV type
① Select 0-1VDC (1V) for measured input in Parameter 1.
② Standard 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 DC200mV (Input). But it is unable due to setting range is 9.999
③ In this case, please check below chart.
Please set as InbH × H-SC = 15.000



Setting method	H-SC	L-SC	InbH	Note
①	Unavailable	0.000	1.000	—
②	7.500	0.000	2.000	In this case, any setting methods display the 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 : oUt.t]



Mode	Output operation	Operation
		H: Hysterisis
oFF		No output
L.St		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		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		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		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		LO output is ON when it is lower than 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		It is operated same with L.St but LO output does not operated under initial Low setting value, and it is ON from under next Low setting value. If this is higher than Low setting value, GO output is ON.

※ H.SEt is displayed according to the setting of output operation mode, when user sets "oFF", H.SEt/L.SEt are not displayed.

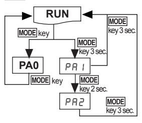
■ Startup Compensation Timer Function[PA 2 : St A.t]

This time function limits the operation of an output until the measured input (overvoltage or inrush current) is stable at moment of power on. All outputs are off during startup compensation time setting after power is supplied.
Setting range: 00.0 to 99.9 (Unit: sec.), Factory default: 00.0

■ Parameter

Parameter	Display		Function	Note
PA 1 (Parameter 1)	In-t	Input type	Selectable RMS/AVG in AC type	Available AC type only.
	In-r	Input range	Selection of input range	—
	dI SP	Display	Selection of display type	Setting range: Stnd, SCAL, FrEq
	Stnd	Standard	Standard scale range	Display Max. display value of Stnd
	FrEq	Frequency	Frequency display	Available AC type only.
	SCAL	Scale	Scale range	These are displayed at SCAL It sets max. display value/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 dispayed at SCAL /FrEq only and set the decimal point position
	InbH	Input bias high	Correct High-limit value of display value	Stnd/SCAL: Correction range 0.100 to 5.000 FrEq: Correction range 0.100 to 9.999
	InbL	Input bias low	Correct Low-limit value of display value	Setting range: -99 to +99
	InbE	Input bias exponent	Set display index of frequency mode	Setting range: 10^{-2}, 10^{-1}, 10^{0}, 10^{1}
PA2 (Parameter 2)	oUt.t	Out type	Set operation mode of preset output	Setting range: oFF, L.St, H.St, LH.St, HH.St, LL.St, Ld.St
	HYS	Hysteresis	Set hysteresis value	Setting range: 1 to 10% F.S.
	StA.t	Startup compen -sation time	Set startup compensation time.	Setting range: 00 to 99.9sec.
	PEK.t	Peak time	Set monitoring delay time for peak value (sec)	Setting range: 00 to 30sec.
	dI S.t	Display time	Set sampling time (sec.)	Setting range: 0.1 to 5.0 sec. (Variable by 0.1sec.)
	ZEro	Zero Key	Set usage of front side zero adjustment key	no: Not use front side zero adjustment key YES: Use front side zero adjustment key
	EuIn	Event Input	Set external terminal (6, 7) 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	Setting range: 01 to 99
	bPS	Bit per second	Set baudrate (bps)	Setting range: 1200, 2400, 4800, 9600
	LoC	Lock	Set lock function	Setting range: oFF, LoC1, LoC2, LoC3
PA 0 (Parameter 0)	H.SEt	High set	Set High setting value	Setting range can be set within the display range of Stnd/SCAL
	L.SEt	Low set	Set Low setting value	
	H.PEK	High peak	Max. value by data monitoring	Initializes the monitored data value by pressing any one of 《 ∨ ∧ keys.
	L.PEK	Low peak	Min. value by data monitoring	

■ Parameter Setting



※Press MODE key in RUN mode and it enters PA 0 group.
※Press MODE key for over 3 sec. in RUN mode, it displays [PA 1].
※Press MODE key for over 5 sec. in RUN mode, it displays [PA2] after [PA1]. When pressing MODE key continually, it stops displaying at [PA2].
※It is advanced to current display parameter releasing MODE key at [PA 1] or [PA2].
※Press MODE key for over 3 sec. in any parameter groups, it returns to RUN mode.
※If any key is not entered for 60 sec. in each parameter, it returns to RUN mode.
※After returning to RUN mode, press MODE key within 2 sec., it returns to previous parameter. (Refer to the below descriptions of each parameter group.)
※PA 0 group cannot be entered when preset output mode of [PA2] group is OFF.

■ Parameter 0

RUN → MODE key touch

- H.SEt: Set preset High-limit value. (It is not displayed when oUt.t mode value of PA2 is oFF) ※Change the value with 《 ∨ ∧ keys.
- L.SEt: Set preset Low-limit value. (It is not displayed when oUt.t mode value of PA2 is oFF) ※Change the value with 《 ∨ ∧ keys.
- H.PEK: It displays High-limit monitoring value (High peak) in RUN mode. It is initialized by pressing any one of 《 ∨ ∧ keys.
- L.PEK: It displays High-limit monitoring value (Low peak) in RUN mode. It is initialized by pressing any one of 《 ∨ ∧ keys.

※If PEK.t of Parameter2 is set as '00 5', H.PEK and L.PEK are not displayed.

■ Parameter 1

RUN → MODE key for 3 sec. → PA 1

- In-r: Select measured input specification. - Refer to "■ Specification Of Measured Input And Range".
- dI SP: Select the display method of measuring input. Setting range: Stnd, SCAL, FrEq. - Refer to "■ Specification Of Measured Input And Range". (FrEq mode is only for AC measuring type.)
- In-t: Select measurement method when it is AC input. Setting range: AUG, rmS (Average: AVG/Root mean square: RMS)

When dI SP is Stnd
- Stnd: It shows max.display value of standard specification. Display value is fixed.

When dI SP is SCAL
- dot: Set decimal point position. Setting range: 0, 0.0, 0.00, 0.000
- H-SC: Set display value for max. input of measured input
- L-SC: Set display value for min. input of measured inputc
- InbH: Adjust High-limit display value gradient for max. input. Setting range: 0.100 to 5.000
- InbL: Adjust Low-limit display value deviation fot min. input. Setting range: -99 to 99

When dI SP is FrEq
- dot: Set frequency measured range (Refer to "■ AC Frequency Measurement Function Part".)
- InbH: Adjust High-limit display value gradient for max. input. Setting range: 0.100 to 9.999
- InbE: Set index for frequency display Setting range: 10-2, 10-1, 10-0, 10 1

Item	Range of measured input
MT4W-DV	500u ↔ 100u ↔ 50u ↔ 10u ↔ 5u ↔ 1u ↔ 0.25u ↔ 50mu ↔ 500u
MT4W-DA	5A ↔ 2A ↔ 0.5A ↔ 0.2A ↔ 50mA ↔ 4-20 ↔ 5mA ↔ 2mA ↔ 5A
MT4W-AV	500u ↔ 250u ↔ 110P(※) ↔ 50u ↔ 20u ↔ 10u ↔ 2u ↔ 1u ↔ 500u
MT4W-AA	5A ↔ 2.5A ↔ 1A ↔ 0.5A ↔ 0.25A ↔ 0.1A ↔ 50mA ↔ 5A

※110P is standard specification of 440/110P.T.

■ Parameter 2

RUN → MODE key 5 sec. → PA2

- oUt.t: Select Preset output mode. Setting range: oFF, L.St, H.St, LH.St, HH.St, LL.St, Ld.St. Refer to "■ Preset Output Mode"
- HYS: Set preset hysteresis. within 10% of F.S. But, it is not displayed when oUt.t mode is oFF.
- StA.t: Set startup compensation time. Setting range: 00 to 99.9sec.
- PEK.t: Set monitoring delay time. Setting range: 00 to 30sec.
- dI S.t: Set a display cycle. Setting range: 0.1 to 5.0sec.
- ZEKY: Enable zero point adjustment by front key operation to select YES. Press both 《 + ∧ keys at the same time for 3sec. The devication value is saved at INbL automatically.
- EuIn: Select either Hold input by No.6, 7 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 DC 20mA output position of PV putput. ※When changing input range and prescale mode, the setting values of FS-H, FS-L are changed automatically as max. and min. value of input range.
- FS-L: Set low-limit value for 4mA output position of PV output.
- AdrS: Set address of RS485 communication output. Setting range: 01 to 99
- bPS: Select baud rate of RS485 communication output. Setting range: 9600, 4800, 2400, 1200
- LoC: Set key lock function and select from 4 kinds. Setting range: oFF, LoC1, LoC2, LoC3

oFF	No key lock function	LoC2	Parameter 1, 2 lock
LoC1	Parameter 1 lock	LoC3	Parameter 0, 1, 2 lock

■ Change The Parameter Setting Value

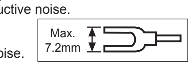
1. Advance to the parameter to be changed when pressing MODE key continuously in RUN mode and releasing MODE key at the parameter. (Refer to "■ Parameter Setting")
2. When pressing MODE key in each parameter, the initial mode of the parameter is displayed. (Refer to the description of each parameter.)
3. When pressing one of 《, ∨, ∧ keys in display mode, the saved setting value is displayed.
   Ex) In-r ← 《 ∨ ∧ Press one → 250u (Setting value) The saved setting value flashes evey 0.5 sec.
4. Change the setting value by ∧ or ∨ key when setting value flashes.
   Ex) Change AC type measured input from 250V to 125V.
   In-r ← 《 ∨ ∧ Press one → 250u (Setting value) ← ∧ ∨ → 125u (Setting value) → dI SP
5. When confitming the setting value with MODE key, the changed setting value flashes twice and enters into the next setting.
6. It returns RUN mode from parameter by pressing MODE key for 3 sec.

■ User Manual For Communication

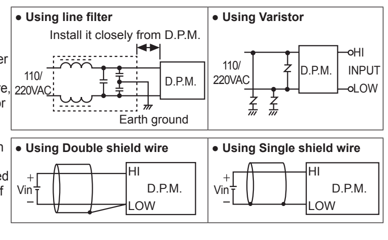
Visit our website (**www.autonics.com**) to download the user manaul for communication of MT series.

■ Cautions During Use

1. Please use the terminal (M3.5, Max.7.2mm) when connectting the AC power supply.
2. Please use separated line from high voltage line or power line in order to avoid inductive noise.
3. Please install power switch or circuit breaker in order to cut off the power supply.
4. The switch or circuit breaker should be installed near by users for safety.
5. Be sure to avoid using this unit near by machinery making strong high frequency noise. (High frequency welder & Sewing machine, High capacity SCR unit etc.)



6. When input applied, if "HHHH" or "LLLL" are displayed, it has some trouble with measuring input, please check the line after power off.
7. 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 noise absorber circuit such as line filter, varistor in external lines when voltage failure occurs by power relay, magnet S/W and high frequency equipment are operated in same line or surge occurs by spark of high voltage or thunder etc.
8. Input line:Shield wire must be used when the measured input line is getting longer in the place occurring lots of noise.
9. Allowable installation environment
   ①If shall be used indoor ③Pollution Degree 2
   ②Altitude Max. 2000m ④Installation Catergory II



※**Failure to follow these instructions may result in product damage.**

■ Major Products

- Photoelectric Sensors
- Fiber Optic Sensors
- Door Sensors
- Door Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connector/Sockets
- Temperature Controllers
- Temperature/Humidity Transducers
- SSR/Power Controllers
- Counters
- Timers
- Panel Meters
- Tachometer/Pulse (Rate) Meters
- Display Units
- Sensor Controllers
- Switching Mode Power Supplies
- Control Switches/Lamps/Buzzers
- I/O Terminal Blocks & Cables
- Stepper Motors/Drivers/Motion Controllers
- Graphic/Logic Panels
- Field Network Devices
- Laser Marking System (Fiber, Co_2, Nd: Yag)
- Laser Welding/Cutting System

Autonics Corporation
http: //www.autonics.com
Trusted Partner In Industrial Automation
■ **HEADQUARTERS:**
18, Bansong-ro 513beon-gil, Haeundae-gu, Busan, South Korea, 48002
■ **OVERSEAS SALES:**
#402-303, Bucheon Techno Park, 655, Pyeongcheon-ro, Wonmi-gu, Bucheon, Gyeonggi-do, South Korea, 14502
TEL: 82-32-610-2730 / FAX: 82-32-329-0728
■ **E-mail:** sales@autonics.com

EP-KE-77-0009L