Autonics

PANEL METER
MT4N SERIES
INSTRUCTION MANUAL

CE

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 fire, personal injury, or economic loss.
2. **Install on a device panel to use.**
Failure to follow this instruction may result in electric shock or fire.
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 or fire.
4. **Check 'Connections' before wiring.**
Failure to follow this instruction may result in fire.
5. **Do not disassemble or modify the unit.**
Failure to follow this instruction may result in electric shock or fire.

⚠ Caution

1. **When connecting the power/measurement input and relay output, use AWG 24(0.20mm²) to AWG 16 (1.30mm²) cable and tighten the terminal screw with a tightening torque of 0.78 to 0.98N·m.** Use proper cables for the rated load current.
Failure to follow this instruction may result in fire or malfunction due to contact failure.
2. **Use the unit within the rated specifications.**
Failure to follow this instruction may result in fire or product damage.
3. **Use dry cloth to clean the unit, and do not use water or organic solvent.**
Failure to follow this instruction may result in electric shock or fire.
4. **Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**
Failure to follow this instruction may result in fire or explosion.
5. **Keep metal chip, dust, and wire residue from flowing into the unit.**
Failure to follow this instruction may result in fire or product damage.

■ Ordering Information

MT	4	N	–	DV	–	E	N	

Control output	N	Without output function
	0	Relay output (2 points)
	1	NPN Open collector output (OUT1,GO,OUT2)
	2	PNP Open collector output (OUT1,GO,OUT2)
	3	Relay (OUT1)+PV trans. (DC4-20mA)output
	4	Relay (OUT1)+RS485 communication output
	5	Relay (OUT1/OUT2)+PV trans. (DC4-20mA) output

Power supply	E	12-24VDC/AC
	A	100-240VAC

Input	DV	DC Volt
	DA	DC Ampere
	AV	AC Volt
	AA	AC Ampere

Size	N	DIN W48×H24mm

Digit	4	9999 (4digit)

Item	MT	Multi Meter

■ Front Panel Identification

1. MT4N
2.
3. MODE ◁ ⋀ ⋁
1. OUT1 : Preset output of OUT1
2. GO : Preset Go output of OUT1/OUT2
3. OUT2 : Preset output of OUT2
4. MODE key
5. ◁ : Shift key
6. ⋁ : Down key
7. ⋀ : Up key
8. mV, V unit
9. mA, A unit
10. Hz unit

■ Panel Cut-Out
(Unit: mm)
Min. 55
Min. 37
22.2⁺⁰·⁶
45⁺⁰·⁶

■ Connections
※Use terminals of size specified below.
a / b
Min. 3.0mm
Max. 6.0mm
<Forked>

- **MT4N-DV-□□**
250mV/50mV, 5V/1V, 10V/5V, SOURCE 12-24VAC/DC 100-240VAC

- **MT4N-DA-□□**
5mA, 50mA/4-20mA, 500mA/200mA, SOURCE 12-24VAC/DC 100-240VAC

- **MT4N-AV-□□**
5V/2.5V, 50V/25V, 250V/125V, SOURCE 12-24VAC/DC 100-240VAC

- **MT4N-AA-□□**
100mA/50mA, 500mA/250mA, 5A/2.5A, SOURCE 12-24VAC/DC 100-240VAC

<Option>
- **Relay output [MT4N-□□□0]**
7 8 9 10 11 12 | OUT1 OUT2 HOLD/ZERO | 1 2 3 4 5 6

- **PNP Open collector output [MT4N-□□□2]**
7 8 9 10 11 12 | OUT1 GO OUT2 COM HOLD/ZERO | 1 2 3 4 5 6

- **Relay+RS485 communication output [MT4N-□□□4]**
7 8 9 10 11 12 | B(-) A(+) RS485 OUT1 HOLD/ZERO | 1 2 3 4 5 6

- **NPN Open Collector output [MT4N-□□□1]**
7 8 9 10 11 12 | OUT1 GO OUT2 COM HOLD/ZERO | 1 2 3 4 5 6

- **Relay+Transmission (DC4-20mA) output [MT4N-□□□3]**
7 8 9 10 11 12 | OUT1 HOLD/ZERO DC4-20mA | 1 2 3 4 5 6

- **Relay 2+Transmission (DC4-20mA) output [MT4N-□□□5]**
7 8 9 10 11 12 | OUT1 OUT2 HOLD/ZERO DC4-20mA | 1 2 3 4 5 6

■ 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' and 'b' and particular values are 'A' and '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 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 measured range.
ouEr	Flashes when it exceeds zero range (±99)

※Zero adjusting error is returning to measurement mode after [ouEr] flashes twice.
※Refer to "■ AC frequency measurement function" for frequency measured range.

■ Initialization Function
This function is to initialize parameter as factory default.
RUN → Press ◁⋀⋁ for over 5 sec
Init → no → YES

MT4N-DV, MT4N-AV, MT4N-DA, MT4N-AA
※Flash key in order and it returns to RUN mode.

■ Display Cycle Delay Function [PA2: dl5t]
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 dl5t 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.

■ Startup Compensation Timer Function [PA2: 5tAt]
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 when power is applied.
Setting range: 00.0 to 99.9 (sec: sec) Factory default: 00.0

■ User Manual For Communication
Visit our website (**www.autonics.com**) to download the user manual for communication of MT series.
※The above specifications are subject to change and some models may be discontinued without notice.
※Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

■ Specifications

Model	MT4N-DV-E□ / MT4N-DA-E□	MT4N-AV-E□ / MT4N-AA-E□	MT4N-DV-4□ / MT4N-DA-4□	MT4N-AV-4□ / MT4N-AA-4□
Measurement input	DC voltage, ampere	AC voltage, ampere, Frequency	DC voltage, ampere	AC voltage, ampere, Frequency
Power supply	12-24VDC⎓, 12-24VAC∼		100-240VAC∼	
Allowable voltage range	90 to 110%		90 to 110%	
Power consumption	DC: 3W, AC: 5VA For MT4N-□□E5 - DC: 5W, AC: 8VA		5VA	
Display method	7 Segment LCD display (Character height: 9mm)			
Display accuracy	23°C ± 5°C - DC Type: F.S.±1% rdg±2digit / AC Type: F.S.±0.3% rdg±3digit DC/AC Type: Within F.S.±0.3% rdg±3digit only for Current 5A terminal -10°C to 50°C - DC/AC Type: F.S.±5% rdg±3digit			
Max. allowable input	110% F.S. for max measured input range			
A/D conversion method	Practical oversampling using successive approximation ADC			
Sampling cycle	DC type: 50ms, AC type: 16.6ms			
Max. display range	-1999 to 9999 (4digit)			
Preset output	Relay - Capacity: 125VAC∼ 0.3A, 30VDC⎓ 1A/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: Sub-synchronization, Protocol: Modbus type Current (DC4-20mA) - Resolution: 12,000 division (Load resistance max. 600Ω)			
Insulation resistance	Over 20MΩ (at 500VDC megger)			
Dielectric strength	1000VAC for 1 minute (Between external terminal and case)		2000VAC for 1 minute (Between external terminal and case)	
Noise immunity	±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 minutes		
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		
Environment	Ambient temperature	-10 to 50°C, Storage: -20 to 60°C		
	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	C€		—	
Weight※1	Approx. 127g (approx. 64g)			

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

■ Measurement Input [PA1: In-r]

Type	Measured input and range	Input impedance	Display range (5tnd)	Prescale Display range (5CAL)
DC Volt	0-50V [50V]	434.35kΩ	0.00 to 50.00 (fixed)	
	0-10V [10V]	434.35kΩ	0.00 to 10.00 (fixed)	
	0-5V [5V]	43.35kΩ	0.000 to 5.000 (fixed)	
	0-1V [1V]	43.35kΩ	0.000 to 1.000 (fixed)	dot / Display range
	0-250mV [250mV]	2.15kΩ	0.0 to 250.0 (fixed)	0 / -1999 to 9999
	0-50mV [50mV]	2.15kΩ	0.00 to 50.00 (fixed)	0.0 / -199.9 to 999.9
DC Ampere	0-500mA [500mA]	1.1Ω	0.0 to 500.0 (fixed)	0.00 / -19.99 to 99.99
	0-200mA [200mA]	1.1Ω	0.0 to 200.0 (fixed)	0.000 / -1.999 to 9.999
	0-50mA [50mA]	1.1Ω	0.00 to 50.00 (fixed)	(Display range is variable according to decimal point position.)
	4-20mA [4-20mA]	1.1Ω	4.00 to 20.00 (fixed)	
	0-5mA [5mA]	101.1Ω	0.000 to 5.000 (fixed)	
	0-2mA [2mA]	101.1Ω	0.000 to 2.000 (fixed)	
AC Volt	0-250V [250V]	1.109MΩ	0.0 to 250.0 (fixed)	※Connect to the input terminals whose 30% to 100% of the input range includes the max. value of the input range to measure.
	0-125V [125V]	1.109MΩ	0.0 to 125.0 (fixed)	
	0-50V [50V]	200kΩ	0.00 to 50.00 (fixed)	
	0-25V [25V]	222kΩ	0.00 to 25.00 (fixed)	When the max. input value
	0-5V [5V]	22kΩ	0.000 to 5.000 (fixed)	is under the 30% of the input terminal range, display accuracy is degraded.
	0-2.5V [2.5V]	22kΩ	0.000 to 2.500 (fixed)	
AC Ampere	0-5A [5A]	0.01Ω	0.000 to 5.000 (fixed)	When the max. input value is over the 100%, it may result in input terminal damage.
	0-2.5A [2.5A]	0.01Ω	0.000 to 2.500 (fixed)	
	0-500mA [500mA]	1.1Ω	0.0 to 500.0 (fixed)	
	0-250mA [250mA]	1.1Ω	0.0 to 250.0 (fixed)	
	0-100mA [100mA]	0.5Ω	0.0 to 100.0 (fixed)	
	0-50mA [50mA]	0.5Ω	0.00 to 50.00 (fixed)	

※When "HHHH" or "LLLL" is flashes with a certain measurement input, disconnect power supply and then check the cables.

■ Monitoring Max./Min. Display Value Function
[PA 0: HPEE/LPEE, PA 2: PEEL]
It monitors max./min. of display value based on the current displays value and then displays the data at HPEE, LPEE of parameter 0. Set the delay time (0 to 30 sec) at PEEL of parameter 2 in order to prevent malfunction 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 the set time. When pressing any one of ◁⋀⋁ keys with display value, the monitored data is initialized.
※Monitoring function is not indicate when the delay time is set as "00 5" at PEEL of parameter 2.

■ Current Output (DC4-20mA) Scale Adjustment Function
[PA 2: FS-H/FS-L]
It sets current output for the display value at the output current 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.

Output
20mA
4mA
Min. setting range 10% F.S.
FS-L / FS-H → Display value

■ AC Frequency Measurement Function [PA1: dl5P]
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: InbL] 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	0.000	0.00	0.0	0
Measurement range	0.100 to 9.999Hz	0.10 to 99.99Hz	0.1 to 999.9Hz	0 to 9999Hz

※Accuracy of frequency measurement:
Below 1kHz, F.S. ±0.1rdg ±2digit.
From 1kHz to 10kHz, F.S. ±0.3rdg ±2digit.
①InbH: 0.100 to 9.999 [Gradient adjustment of high value]
②InbL: 10², 10¹, 10⁰, 10¹ [Index adjustment of range]

■ Error Correction Function
[PA1: 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]
Display 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 "12" to 0V input, set -12 as the InbL value to display "00" 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 "50.0", 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 correction range of InbL is within -99 to 99 for D⁰, D¹ digit regardless of decimal point.

■ Zero Adjustment Function
It adjusts the display value of the optional 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 at saved in InbL automatically.

Operation	Input correction value	Front key	Input external signal
Description	PA1: Direct input correction value method at InbL.	Press both ◁⋀ keys for 3 sec at the RUN mode.	Short-circuit external Hold terminal no.10, 11, 12. ※It is enable to use in option mode.

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

■ Gradient Correction Function [PA 1: InbH]
It corrects the gradient of prescale value and display value.
(Figure 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) To display "3.000" in DC 200mV input for measured input specification as 0 to 1V,
① Select 0-1VDC 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 200mVDC (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

(Example of gradient correction)

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

■ Preset Output Mode [PA 2: oU1t/oU2t]

Mode	Output operation	Operation
oFF	No output	No output
H1	OUT1.H Hysteresis / OUT1.H	Period ON: Display value≥OUT1.H Period OFF: Display value≤OUT1.H-Hys
Lo	OUT1.L / OUT1.L	Period ON: Display value≤OUT1.L Period OFF: Display value≥OUT1.L+HYS
HL	OUT1.H / OUT1.L	Period ON: Display value≥OUT1.H or Display value≤OUT1.L Period OFF: Display value≤OUT1.H-Hys or Display value≥OUT1.L+Hys
HL-G	OUT1.H / OUT1.L	Period ON: OUT1.L≤Display value≤OUT1.H+Hys Period OFF: Display value≥OUT1.H-Hys or Display value≤OUT2.H+Hys

※Set output range hereunder for each OUT1/OUT2.
※OUT1/OUT2 are operated individually depending on output operation mode.
※Setting value mode of parameter display by OUT1/OUT2.
※GO outputs on when the period both OUT1/OUT2 are off. (NPN/PNP Open collector output type)

■ 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 / —
	dl5P	Display	Selection of display type	Setting range: 5tnd, 5CAL, FrE9
	5tnd	Standard	Standard scale range	Display max. display value of 5tnd
	5CAL	Scale	Scale range	Available AC type only.
	H-SC	High scale	Set max. value of display range	These are displayed at 5CAL only
	L-SC	Low scale	Set min. value of display range	It sets max/min. display value (-1999 to 9999).
	dot	Dot	Set decimal point position	This is displayed in 5CAL,FrE9 only and set the position.
	InbH	Input bias high	Correct High-limit gradient of display value	5tnd/5CAL : Correction range: 0.100 to 5.000, FrE9 : Correction range: 0.100 to 9.999
	InbL	Input bias low	Correct Low-limit gradient of display value	Setting range: -99 to +99
	InbE	Input bias exponent	Set display index of frequency mode	Setting range: 10², 10¹, 10⁰, 10¹
PA2 (Parameter 2)	oU1t	Out1 type	Select output mode of OUT1	Setting range: oFF, H1, Lo, HL, HL-G
	oU2t	Out2 type	Select output mode of OUT2	Setting range: oFF, H1, Lo, HL, HL-G
	HYS1	Out1 hysteresis	Select hysteresis of OUT1	Within 1 to F.S. 10% (Variable depending on set of input range and prescale)
	HYS2	Out2 hysteresis	Select hysteresis of OUT2	
	5tAt	Startup compensation time	Set startup compensation time	Setting range: 0.0 to 99.9 sec
	PEEt	Peak time	Set monitoring delay time for peak value (sec)	Setting range: 00 to 30 sec
	dl5t	Display time	Set sampling time (sec)	0.1 to 5.0 sec (Variable by 0.1 sec)
	CoLr	Color	Select color	Setting range: rEd, Grn, YEL, r-G, G-r
	zEro	Zero key	Set usage of front side zero adjustment key	Setting range: -99 to +99
	E-in	Event input	Set external terminal (11, 12) function	HoLd : Use external terminal as Hold terminal zEro : Use external terminal as zero point adjustment terminal
	FS-H	Full scale high	Set High-limit value output position of PV output	Min. set range: Min. 10% F.S.
	FS-L	Full scale low	Set Low-limit value output position of PV output	Max. set range: Max. F.S.-10%
	Adr5	Address	Set communication address	Setting range: 01 to 99
	bP5	Bit per second	Set baud rate (bps)	Setting range: 1200, 2400, 4800, 9600
	Prty	Parity bit	Set parity bit	Setting range: nonE, EuEn, odd
	5tP	Stop bit	Set stop bit	Setting range: 1, 2
	r5Ut	Response waiting time	Set response waiting time	Setting range: 5 to 99
	LoC	Lock	Enable lock status	Setting range: oFF, LoC1, LoC2, LoC3
PA0 (Parameter 0)	oU1H	OUT1 high preset	Set value of OUT1 High-limit output	
	oU1L	OUT1 low preset	Set value of OUT1 Low-limit output	For MT4N-DV/DA type, set range of oU1H/oU1L is within -5 to 110%.
	oU2H	OUT2 high preset	Set value of OUT2 High-limit output	
	oU2L	OUT2 low preset	Set value of OUT2 Low-limit output	
	HPEE	High peak	Max. value by data monitoring	Initializes the monitored data value by pressing any one of ◁⋀⋁ keys.
	LPEE	Low peak	Min. value by data monitoring	

■ Parameter Setting

RUN
◁ MODE key → ※Press MODE key in RUN mode and it enters PA0 group.
PA0
MODE key 3sec → MODE key 2sec → PA1 ※Press MODE key for over 3 sec in RUN mode, it displays [PA1].
MODE key 3sec → PA2 ※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 [PA1] to [PA2].
※Press MODE key for over 3 sec in any parameter, 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.

■ 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 → ⋀⋁ Setting value 250U The saved setting value flashes every 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 → ⋀⋁ Setting value 250U → ⋀⋁ Setting value 125U → MODE
5. When confirming 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.

■ Parameter 0

RUN
oU1H ※Set preset High-limit value of oU1H (It is not displayed when oU1t mode value of PA2 is oFF.) ※Change the value by ⋀⋁ keys.
oU1L ※Set preset Low-limit value of oU1L (It is not displayed when oU1t mode value of PA2 is oFF.) ※Change the value by ⋀⋁ keys.
oU2H ※Set preset High-limit value of oU2H (It is not displayed when oU2t mode value of PA2 is oFF.) ※Change the value by ⋀⋁ keys.
oU2L ※Set preset Low-limit value of oU2L (It is not displayed when oU2t mode value of PA2 is oFF.) ※Change the value by ⋀⋁ keys.
HPEE ※It displays Max. monitoring value (High peak) in RUN mode. It is initialized by pressing any one of ◁⋀⋁ keys.
LPEE ※It displays Min. monitoring value (Low peak) in RUN mode. It is initialized by pressing any one of ◁⋀⋁ keys.

※If PEEt monitoring delay time of Parameter2 is set as "00 5", HPEE and HPEE are not displayed.

■ Parameter 1

RUN
MODE key 3 sec
PA1
In-r → Select measured input specification. (Refer to "■ Measurement Input".)
MODE
dl5P → Set display type for measured input. Setting range: 5tnd, 5CAL, FrE9 (FrE9 is only available for AC type.)
MODE
In-t → Select measurement method when it is AC input. Setting range: r5, AuG
MODE

When dl5P is 5tnd	When dl5P is 5CAL	When dl5P is FrE9
5tnd It shows max. display value of standard specification. Display value is fixed.	dot Set decimal point position. Setting range: 0.00, 0.000, 0.0, 0	dot Set frequency measured range. (Refer to "■ AC frequency measurement function".)
	H-SC Set display value for max. input of measured input.	
	L-SC Set display value for min. input of measured input.	
	dUnt Setting unit. Setting range: Au, uU, AA, A, H, oFF	
	InbH Adjust High-limit display value gradient for max. input. Setting range: 0.100 to 5.000	InbH Adjust High-limit display value gradient for max. input. Setting range: 0.100 to 9.999
	InbL Adjust Low-limit display value deviation for min. input. Setting range: -99 to 99	InbE Set index for frequency display. Setting range: 10², 10¹, 10⁰, 10¹

MODE

<Measured input specification for each model>

Model	Measured input range
MT4N-DV	50V ↔ 10V ↔ 5V ↔ 1V ↔ 250mV ↔ 50mV ↔ 50V
MT4N-DA	500mA ↔ 200mA ↔ 50mA ↔ 4-20mA ↔ 5mA ↔ 2mA ↔ 500mA
MT4N-AV	250V ↔ 125V ↔ 50V ↔ 25V ↔ 5V ↔ 2.5V ↔ 250V
MT4N-AA	5A ↔ 2.5A ↔ 500mA ↔ 250mA ↔ 100mA ↔ 50mA ↔ 5A

■ Parameter 2

RUN
MODE key 5 sec
PA2
oU1t → Select Preset output mode of OUT1. Setting range: oFF, H1, Lo, HL, HL-G But, it is only displayed in OUT1 output included model.
MODE
oU2t → Select Preset output mode of OUT2 as Setting range: oFF, H1, Lo, HL, HL-G But, it is only displayed in OUT2 output included model.
MODE
HYS1 → Set Preset hysteresis of OUT1 within 10% of F.S. But, it is not displayed when oU1t mode is oFF.
MODE
HYS2 → Set Preset hysteresis of OUT2 within 10% of F.S. But, it is not displayed when oU2t mode is oFF.
MODE
5tAt → Set startup compensation time. Setting range: 0.0 to 99.9 sec
MODE
PEEt → Set monitoring delay time. Setting range: 00 to 30 sec
MODE
dl5t → Set display period and also variable sets by 0.1 sec. Setting range: 0.1 to 5.0 sec
MODE
CoLr → Select color with 5 modes. Setting range: rEd, Grn, YEL, r-G, G-r rEd,Grn,YEL: Displays with 1 color. r-G,G-r: Color is changed when error occurs. Ex) r-G : Red is standard and green when error occurs. ※Color is changed only when error in "■ Error display function" occurs excluding 'over'.
MODE
(continued at right column)

zEro → Enable zero adjustment by front key operation to select YES. Press both ◁⋀ keys at the same time for 3 sec. The deviation value is saved at InbL automatically.
MODE
E-in → Select either hold input by terminal 11, 12 or zero point adjustment. -HoLd: Display value holding. -zEro: zero adjustment by hold terminal.
MODE
FS-H → Set High-limit value of DC 20mA output position of PV output. ※When changing input range and prescale mode, the setting values of FS-H and FS-L are changed automatically as maximin. value of input range.
MODE
FS-L → Set Low-limit value for DC 4mA output position of PV output.
MODE
Adr5 → Set address of RS485 communication output. Setting range: 01 to 99
MODE
bP5 → Set baud rate of RS485 communication output. Setting range: 9600, 4800, 2400, 1200
MODE
Prty → Set parity bit of RS485 communication output. Setting range: nonE, EuEn, odd
MODE
5tP → Set stop bit of RS485 communication output. Setting range: 1, 2
MODE
r5Ut → Set response waiting time of RS485 communication. Setting range: 5 to 99
MODE
LoC → Set key lock function and select from 4 kinds. Setting range: oFF, LoC1, LoC2, LoC3, oFF

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

■ Cautions during Use
1. Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
2. 12-24VDC/12-24VAC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
3. Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
4. 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
110/220VAC → Line filter → HI Panel meter LOW / Earth ground	110/220VAC → Varistor → HI Panel meter LOW

5. This unit may be used in the following environments.
①Indoors (in the environment condition rated in 'Specifications')
②Altitude max. 2,000m
③Pollution degree 2
④Installation category II

■ Major Products
- Photoelectric Sensors
- Fiber Optic Sensors
- Door Sensors
- Door Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connector/Sockets
- 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, CO₂, Nd: YAG)
- Laser Welding/Cutting System
- Temperature Controllers
- Temperature/Humidity Transducers
- SSRs/Power Controllers
- Counters
- Timers
- Panel Meters
- Tachometer/Pulse (Rate) Meters
- Display Units
- Sensor Controllers

Autonics Corporation
http://www.autonics.com

HEADQUARTERS:
18, Bansong-ro 513beon-gil, Haeundae-gu, Busan, South Korea, 48002
TEL: 82-5-519-5532
E-mail: sales@autonics.com