

# Autonics PANEL METER MT4Y SERIES INSTRUCTION MANUAL



Thank you for choosing our Autonics products. Please read the following safety considerations before use.

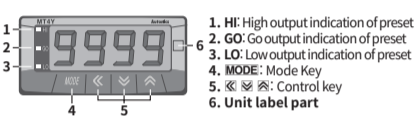
## Safety Considerations

- Please observe all safety considerations for safe and proper product operation to avoid hazards.
  - 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.
- Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss.
  - Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.
  - Install on a device panel to use.
  - Do not connect, repair, or inspect the unit while connected to a power source.
  - Check 'Connections' before wiring.
  - Do not disassemble or modify the unit.

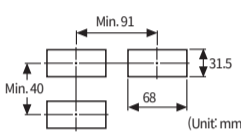
## Caution

- When connecting the power/measurement input and relay output, use AWG 24(0.20mm<sup>2</sup>) to AWG 15 (1.65mm<sup>2</sup>) cable and tighten the terminal screw with a tightening torque of 0.98 to 1.18N.m.
- Use the unit within the rated specifications.
- Use a dry cloth to clean the unit, and do not use water or organic solvent.
- Keep the product away from metal chip, dust, and wire residue which flow into the unit.

## Front Panel Identification

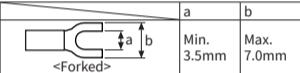


## Panel Cut-Out

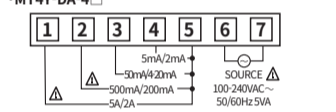
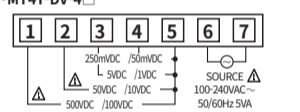


## Connections

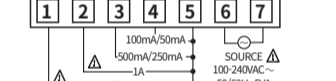
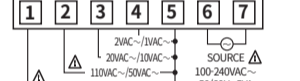
- Use terminals of size specified below.
- Use the Copper conductor wire with the temperature class 60.



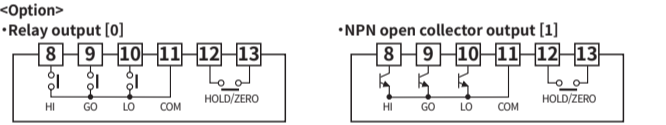
## Input



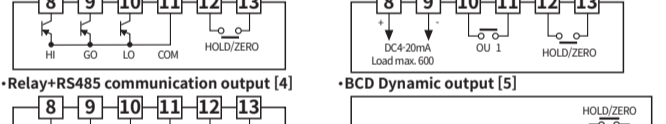
## Option



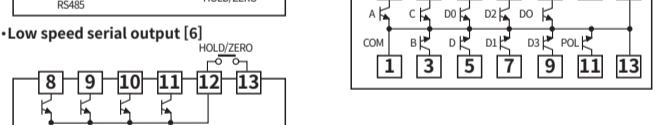
## Time Chart of Serial Output And BCD Output



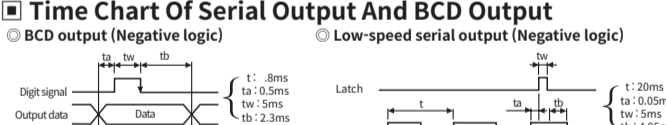
## Prescale Function [PA 1: H-SC/L-SC]



## Error Display Function



## Monitoring Max./Min. Display Value Function



## Specifications

Series	MT4Y	
Power supply	100 240VAC	50/60Hz
Allowable voltage range	90 to 110%	
Power consumption	5VA	
Display method	7 Segment LED display (red) (Character height: 14.2mm)	
Display accuracy	±23°C±5°C DC Type: F.S. ±0.1% rdg±2digit / AC Type: F.S. ±0.3% rdg±3digit • 10°C to 50°C DC/AC Type: F.S. ±0.3% rdg±3digit max. only for 5A terminal. • 10°C to 50°C DC/AC Type: F.S. ±0.5% rdg±3digit	
Input specification	DC Voltage/Current, AC Voltage/Current, AC Frequency	
Max. allowable input	110% F.S. for each measured input range	
A/D conversion method	ΣΔ (Sigma Delta) 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 ±2VDC 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	Over 100MΩ (at 500VDC megger) between external terminal and case	
Dielectric strength	2,000VAC for 1minute 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 min	
Shock	Mechanical 100m/s <sup>2</sup> (approx. 10G) in each X, Y, Z direction for 3 times Malfunction 300m/s <sup>2</sup> (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)	
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	CE,	
Weight	Approx. 213.5g (approx. 134g)	

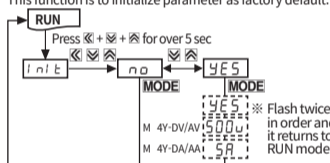
\*1: The weight includes packaging. The weight in parenthesis is for unit only.  
\*2: Environment resistance is rated at no freezing or condensation.

## Measurement Input [PA 1: I n n r]

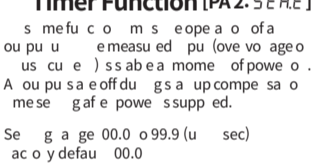
Type	Measured input and range	Input impedance	Display range [S t e n d]	Prescale Display range [S C R L]
DC Volt	0 500V	500Ω	0.0 to 500.0 (fixed)	0.0 to 500.0 (fixed)
	0 100V	100Ω	0.0 to 100.0 (fixed)	0.0 to 100.0 (fixed)
	0 50V	50Ω	0.0 to 50.0 (fixed)	0.0 to 50.0 (fixed)
	0 10V	10Ω	0.0 to 10.0 (fixed)	0.0 to 10.0 (fixed)
	0 5V	5Ω	0.0 to 5.0 (fixed)	0.0 to 5.0 (fixed)
	0 1V	1Ω	0.0 to 1.0 (fixed)	0.0 to 1.0 (fixed)
	0 250mV	250Ω	0.0 to 250.0 (fixed)	0.0 to 250.0 (fixed)
	0 50mV	50Ω	0.0 to 50.0 (fixed)	0.0 to 50.0 (fixed)
	0 5A	5Ω	0.0 to 5.0 (fixed)	0.0 to 5.0 (fixed)
	0 20A	2Ω	0.0 to 2.0 (fixed)	0.0 to 2.0 (fixed)
DC Ampere	0 500mA	500Ω	0.0 to 500.0 (fixed)	0.0 to 500.0 (fixed)
	0 200mA	200Ω	0.0 to 200.0 (fixed)	0.0 to 200.0 (fixed)
	0 50mA	50Ω	0.0 to 50.0 (fixed)	0.0 to 50.0 (fixed)
	0 20mA	20Ω	0.0 to 20.0 (fixed)	0.0 to 20.0 (fixed)
	0 5mA	5Ω	0.0 to 5.0 (fixed)	0.0 to 5.0 (fixed)
	0 2mA	2Ω	0.0 to 2.0 (fixed)	0.0 to 2.0 (fixed)
	0 500V	500Ω	0.0 to 500.0 (fixed)	0.0 to 500.0 (fixed)
	0 250V	250Ω	0.0 to 250.0 (fixed)	0.0 to 250.0 (fixed)
	0 110V	110Ω	0.0 to 110.0 (fixed)	0.0 to 110.0 (fixed)
	0 50V	50Ω	0.0 to 50.0 (fixed)	0.0 to 50.0 (fixed)
AC Volt	0 20V	20Ω	0.0 to 20.0 (fixed)	0.0 to 20.0 (fixed)
	0 10V	10Ω	0.0 to 10.0 (fixed)	0.0 to 10.0 (fixed)
	0 2V	2Ω	0.0 to 2.0 (fixed)	0.0 to 2.0 (fixed)
	0 1V	1Ω	0.0 to 1.0 (fixed)	0.0 to 1.0 (fixed)
	0 5A	5Ω	0.0 to 5.0 (fixed)	0.0 to 5.0 (fixed)
	0 2.5A	2.5Ω	0.0 to 2.5 (fixed)	0.0 to 2.5 (fixed)
	0 1A	1Ω	0.0 to 1.0 (fixed)	0.0 to 1.0 (fixed)
	0 500mA	500Ω	0.0 to 500.0 (fixed)	0.0 to 500.0 (fixed)
	0 250mA	250Ω	0.0 to 250.0 (fixed)	0.0 to 250.0 (fixed)
	0 100mA	100Ω	0.0 to 100.0 (fixed)	0.0 to 100.0 (fixed)
AC Ampere	0 50mA	50Ω	0.0 to 50.0 (fixed)	0.0 to 50.0 (fixed)
	0 20mA	20Ω	0.0 to 20.0 (fixed)	0.0 to 20.0 (fixed)
	0 5mA	5Ω	0.0 to 5.0 (fixed)	0.0 to 5.0 (fixed)
	0 2mA	2Ω	0.0 to 2.0 (fixed)	0.0 to 2.0 (fixed)
	0 500V	500Ω	0.0 to 500.0 (fixed)	0.0 to 500.0 (fixed)
	0 250V	250Ω	0.0 to 250.0 (fixed)	0.0 to 250.0 (fixed)
	0 110V	110Ω	0.0 to 110.0 (fixed)	0.0 to 110.0 (fixed)
	0 50V	50Ω	0.0 to 50.0 (fixed)	0.0 to 50.0 (fixed)
	0 20V	20Ω	0.0 to 20.0 (fixed)	0.0 to 20.0 (fixed)
	0 10V	10Ω	0.0 to 10.0 (fixed)	0.0 to 10.0 (fixed)

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

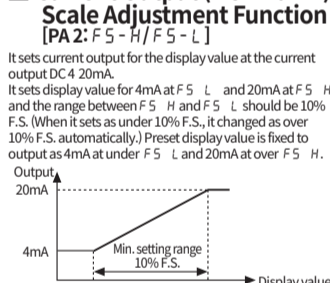
## Initialization Function



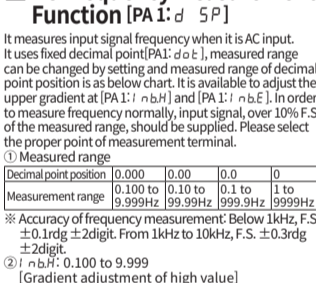
## Startup Compensation Timer Function [PA 2: S t R t]



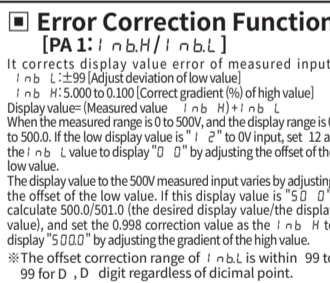
## Current Output (DC4-20mA) Scale Adjustment Function [PA 2: F S - H / F S - L]



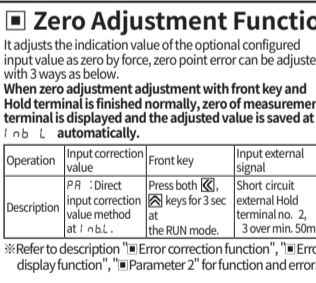
## AC Frequency Measurement Function [PA 1: d S P]



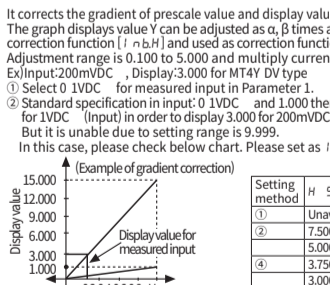
## Error Correction Function [PA 1: i n b H / i n b L]



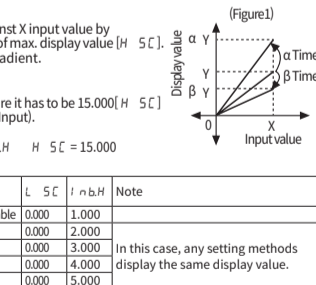
## Zero Adjustment Function



## Gradient Correction Function [PA 1: i n b H]



## Preset Output Mode [PA 2: o U t t e]



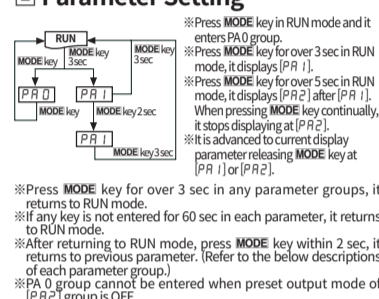
## Display Cycle Delay Function [PA 2: d i S t]

some app ca o s e measu ed pu may fu ua ew c u causes ed sp ay of uc ua e. By ad us g ed sp ay cyc e de ay fu c o me a d S t: of pa ame e 2, e ope a o ca ad us e d sp ay me w a g e of 0.1 sec o 5 sec. o examp e, f e ope a o s e d sp ay cyc e me o 4.0 sec, e d sp ay ua u e d sp ay w be e ave age pu va ove 4 sec a d s ow s ow a yc a ges fa yeve y 4 sec.

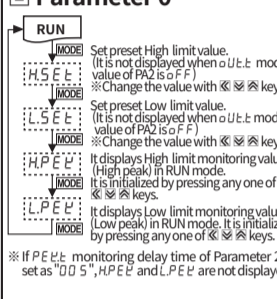
## Parameter

Parameter	Display	Function	Note
PA1 (Parameter 1)	i n t	Input type	Selectable RMS/AVG in AC type. Available AC type only.
	i n r	Input range	Selection of input range
	d i S P	Display	Selection of display type
	S t e n d	Standard	Standard scale range
	F r E 9	Frequency	Frequency display
	S C R L	Scale	Scale range
	H S C	High scale	Set max. value of display range
	L S C	Low scale	Set min. value of display range
	d o t	Dot	Set decimal point position
	i n b H	Input bias high	Correct high limit value of display value
	i n b L	Input bias low	Correct low limit value of display value
	i n b E	Input bias exponent	Set display/index of frequency mode
	o U t t e	Out type	Set operation mode of preset output
	H S t	Hysteresis	Set hysteresis value
	S t R t	Startup compensation time	Set startup compensation time
PA2 (Parameter 2)	P E t t e	Peak time	Set monitoring delay time for peak value (sec)
	d i S	Display time	Set sampling time (sec)
	E r o	Zero key	Set usage of front side zero adjustment key
	E u t i n	Event input	Set external terminal ( 2, 3 ) function
	F S H	Full scale high	Set the upper value output point or PV output
	F S L	Full scale low	Set the lower value output point or PV output
	R d s	Address	Set communication address
	b P S	Bit per second	Set baud rate (bps)
	P r t y	Parity bit	Set parity bit
	S t P	Stop bit	Set stop bit
	r S t e	Response waiting time	Set response waiting time
	L o c	Lock	Set lock function
	H S E t	High set	Set high setting value
	L S E t	Low set	Set low setting value
	H P E t	High peak	Max. value by data monitoring
L P E t	Low peak	Min. value by data monitoring	

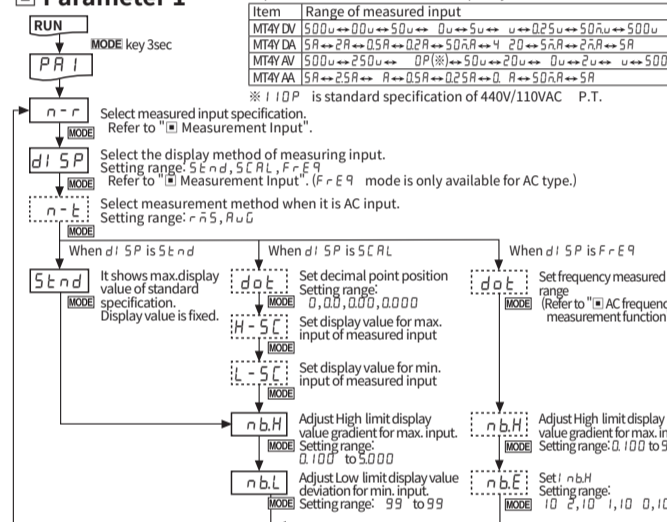
## Parameter Setting



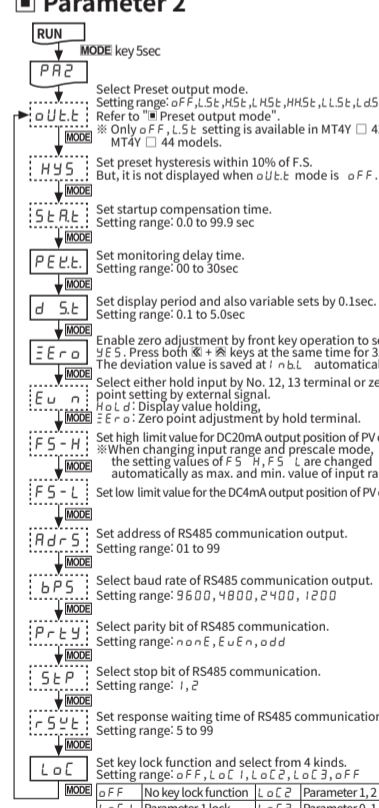
## Parameter 0



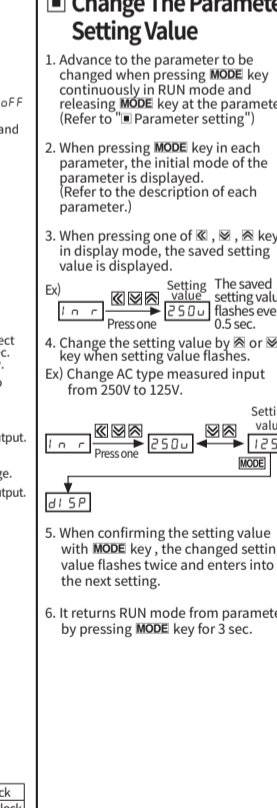
## Parameter 1



## Parameter 2

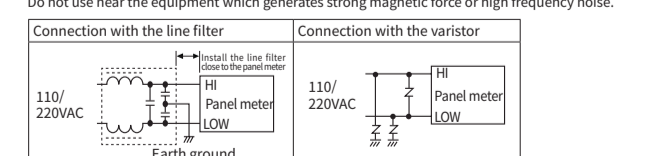


## Change The Parameter Setting Value



## Cautions during Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
- When the power is on in the short state of HOLD/ZERO, the display value may not appear properly.
- Keep away from high voltage lines or power lines to prevent induction 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.



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