(L) Digital Panel Meter

(A)
Photo
electric
sensor

(B)
Fiber
optic
sensor

(C)
Door/Area
sensor

(D)
Proximity
sensor

(E)
Pressure
sensor

(F)
Rotary
encoder

(G)
Connector/
Socket

(H)
Temp.
controller

(I)
SSR/
Power
controller

(J)
Counter

(K)
Timer

(L)
Panel
meter

(M)
Tacho/
Speed/
Pulse
meter

(N)
Display
unit

(O)
Sensor
controller

(P)
Switching
power
supply

(Q)
Stepping
motor &
Driver &
Controller

(R)
Graphic/
Logic
panel

(S)
Field
network
device

(T)
Production
stoppage
models &
replacement

Multi panel meter MT4N Series

Multi panel meter MT4Y Series

Multi panel meter MT4W Series

Product Overview

Indicator

Series	M4NS	M4YS	M4N	M4V	MT4N
Appearances & Dimensions	[W48×H24×L48mm]	[W72×H36×L77mm]	[W48×H24×L59mm]	[W75×H25×L93mm]	CE [W48×H24×L83mm]
Character height	10mm	14mm	10mm	14mm	9mm
Max. display range	−1999 to 999			1999	−999 to 9999	−1999 to 9999
Measurement input	DC4−20mA		DC voltage, DC current		DC voltage DC current AC voltage AC current
AC measurement	——				AVG value RMS value
Display unit	V, V̱, mV, mV̱, KV, A, A̱, mA, mA̱, μA, W, kW, VA, kVA, var, kvar, mm, cm, m, km, μm, cm², m², mm², cm³, m³, mg, g, kg, g/cm², kg/m, kg/cm², sec, min, hour, rps, rpm,m/min, cm/min, mm/min, mm/sec, cm/sec, m/sec, Pa, kPa, mPa, kgf/cm², kg·m, kgf/mm², mmHg, mmH₂O, psi, cal, kcal, ℓ, μℓ, mℓ, kℓ, Hz, kHz, MHz, %, ℃, °F, Ω, kΩ, MΩ, COSφ, TON, DOC				
Power supply	Loop powered type		5VDC 12−24VDC	12−24VDC	12−24VDC/AC
Reference	L−3 to 6		L−7 to 10	L−11 to 14	L−15 to 22

Indicator

Series	MT4Y/MT4W	M4Y	M4W	M5W	M4M
Appearances & Dimensions	[W72×H36×L77mm] [W96×H48×L100mm]	[W72×H36×L93mm]	[W96×H48×L104mm]	[W96×H48×L104mm]	[W72×H72×L113mm]
Character height	14mm	14mm	14mm	14mm	10mm
Max. display range	−1999 to 9999	1999		19999	1999
Measurement input	DC voltage, DC current, AC voltage, AC current				
AC measurement	AVG value, RMS value			RMS value	AVG value RMS value
Display unit	V, V̱, mV, mV̱, KV, A, A̱, mA, mA̱, μA, W, kW, VA, kVA, var, kvar, mm, cm, m, km, μm, cm², m², mm², cm³, m³, mg, g, kg, g/cm², kg/m, kg/cm², sec, min, hour, rps, rpm, m/min, cm/min, mm/min, mm/sec, cm/sec, m/sec, Pa, kPa, mPa, kgf/cm², kg·m, kgf/mm², mmHg, mmH₂O, psi, cal, kcal, ℓ, μℓ, mℓ, kℓ, Hz, kHz, MHz, %, ℃, °F, Ω, kΩ, MΩ, COSφ, TON, DOC				
Power supply	100−240VAC, 12−24VDC (Option, MT4W)	100−240VAC 24−70VDC (Option) 5VDC (Option)	110/220VAC 100−240VAC (Option) 24−70VDC (Option)	100−240VAC 24−70VDC (Option)	110/220VAC 100−240VAC (Option) 24−70VDC (Option)
Reference	L−23 to 34	L−35 to 45			

Autonics

Setting type

Series	MT4N	MT4Y	MT4W
Appearances & Dimensions	CE [W48×H24×L83mm]	c**UL**us CE [W72×H36×L77mm]	c**UL**us CE [W96×H48×L100mm]
Character height	9mm	14mm	
Max. display range	−1999 to 9999		
Measurement input	DC voltage, DC current, AC voltage, AC current		
AC measurement	AVG value, RMS value		
Display unit	V, V̲, mV, mV̲, KV, A, A̲, mA, mA̲, μA, W, kW, VA, kVA, var, kvar, mm, cm, m, km, μm, cm², m², mm², cm³, m³, mg, g, kg, g/cm, kg/m, kg/cm², sec, min, hour, rps, rpm, m/min, cm/min, mm/min, mm/sec, cm/sec, m/sec, Pa, kPa, mPa, kgf/cm², kg·m, kgf/mm², mmHg, mmH₂O, psi, cal, kcal, ℓ, μℓ, mℓ, kℓ, Hz, kHz, MHz, %, ℃, ℉, Ω, kΩ, MΩ, COSφ, TON, DOC		
Power supply	12−24VDC/AC	100−240VAC, 12−24VDC(Option, MT4W)	
Main output	Single relay output (OUT1) Dual relay output (OUT1,OUT2) Triple NPN open collector output (OUT1,OUT2,GO) Triple PNP open collector output (OUT1,OUT2,GO)	Triple relay output (Hi, GO, Low) Triple NPN open collector output Triple PNP open collector output	
Sub output	RS485 output, PV transmission (4−20mA)DC output	RS485 output, PV transmission (4−20mA)DC output, BCD output, Low speed serial output	
Reference	**L−15 to 22**	**L−23 to 34**	

Setting type

Series	M4W1P	M4W2P	M4M1P	M4M2P
Appearances & Dimensions	[W96×H48×L104mm]	[W96×H48×L104mm]	[W72×H72×L113mm]	[W72×H72×L113mm]
Character height	10.2mm		10mm	
Max. display range	1999			
Measurement input	DC voltage, DC current, AC voltage, AC current			
AC measurement	AVG value, RMS value			
Display unit	V, V̲, mV, mV̲, KV, A, A̲, mA, mA̲, μA, W, kW, VA, kVA, var, kvar, mm, cm, m, km, μm, cm², m², mm², cm³, m³, mg, g, kg, g/cm, kg/m, kg/cm², sec, min, hour, rps, rpm, m/min, cm/min, mm/min, mm/sec, cm/sec, m/sec, Pa, kPa, mPa, kgf/cm², kg·m, kgf/mm², mmHg, mmH₂O, psi, cal, kcal, ℓ, μℓ, mℓ, kℓ, Hz, kHz, MHz, %, ℃, ℉, Ω, kΩ, MΩ, COSφ, TON, DOC			
Power supply	110/220VAC 100−240VAC(Customizable) 24−70VDC(Customizable)			
Main output	Single relay output (HI output)	Dual relay output (HI, LOW output)	Single relay output (HI output)	Dual relay output (HI, LOW output)
Sub output	———	———	———	———
Reference	**L−35 to 45**			

M4NS/ M4YS

DIN W48×H24mm, W72×H36mm Loop powered digital scaling meter

▣Features

● Loop powered type
● Measurement input : DC4−20mA
● Max. display range : −1999 to 9999
● Prescale function
● Decimal point change function
● Hi / Low limit input correction function
● Display peak value monitoring function
● Changeable delay time of monitoring peak value
● Display cycle change function
  (Selectable 0.5sec./1sec./2sec./3sec./4sec./5sec.)
● Error display function

> ⚠ **Please read "Caution for your safety" in operation manual before using.**

▣Ordering information

M	4	N	S	−	N	A

Input	A	DC4−20mA
Power supply	N	Loop powered type
Scaling meter	S	Scaling meter
Size	N	DIN W48×H24mm
	Y	DIN W72×H36mm
Digit	4	9999(4 Digit)
Item	M	Meter

▣Specifications

Model		M4NS-NA	M4YS-NA
Power supply		Loop powered type	
Display method		7 Segment LED display	
Character height		10mm	14mm
Display accuracy	(★1)	0.3% F.S of ±1 digit	
Display cycle		Selectable 0.5sec./1sec./2sec./3sec./4sec./5sec.	
Resolution		12,000 resolution	
Max. display range		−1999 to 9999	
Setting type		Front switches	
Measurement input	(★2)	DC4−20mA	
Self−diagnosis function		Error display function(HHHH/LLLL)	
Insulation resistance		Min. 100MΩ (at 500VDC megger)	
Dielectric strength		2000VAC 50/60Hz for 1minute	
Vibration	Mechanical	0.75mm amplitude at frequency of −10 to 55Hz in each of X, Y, Z directions for 1hour	
	Malfunction	0.5mm amplitude at frequency of −10 to 55Hz in each of X, Y, Z directions for 10minute	
Shock	Mechanical	300m/s² (30G) in X, Y, Z directions for 3 times	
	Malfunction	100m/s² (10G) in X, Y, Z directions for 3 times	
Ambient temperature		−10 to 50℃ (at non−freezing status)	
Storage temperature		−25 to 66℃ (at non−freezing status)	
Ambient humidity		35 to 85%RH	
Unit weight		Approx. 44g	Approx. 110g

※(★1) Ambient temperature(25℃ ±5℃): 0.3% F.S of ±1Digit(−10 to 50℃: 0.4% F.S of ±1Digit)
※(★2) Impedance between input lines: Max. 600Ω (based on 24VDC)
     Please be aware that activating input power is based on 24VDC, and the recommended impedence also will be lowered
     if the activating power is lower.

Scaling Meter

▣ Front panel identification

● M4NS-NA

● M4YS-NA

① Display value, parameter, error display
② M, MD key: When enter into parameter group, return to RUN mode, after completing parameter setting
③ ▲, ▲ (Up) key: When enter into the status of parameter setting
④ ◄, ◄ (Shift) key: When enter into the status of parameter setting and move digit
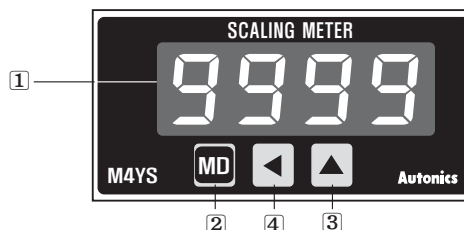
▣ Connections

● M4NS-NA

```
INPUT
1  2  3  4  5
          +  −
       DC4−20mA
```

● M4YS-NA

```
INPUT
1  2  3  4  5  6  7
+     −
DC4−20mA
```

▣ Dimensions

● M4NS-NA

48   36   24   4   48   21   ● Panel cut-out

Min. 60   Min. 37 $22.2^{+0.3}_{0}$ $45.5^{+0.5}_{0}$

(Unit:mm)

● M4YS-NA

85   72   36   6   77   30   ● Panel cut-out

Min. 91   Min. 40 $31.5^{+0.5}_{0}$ $68^{+0.7}_{0}$
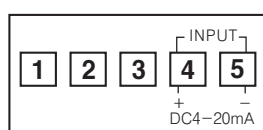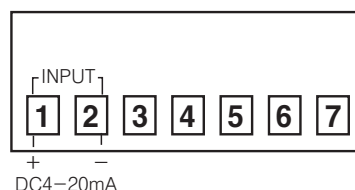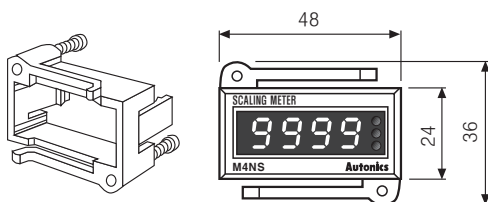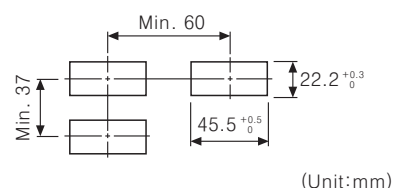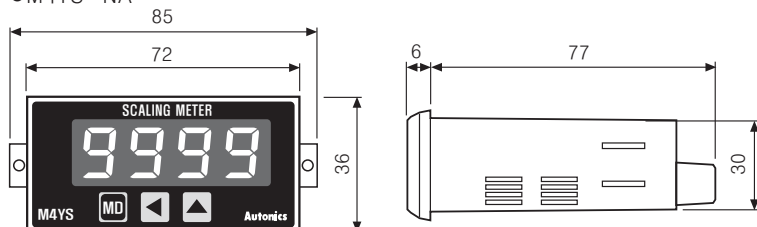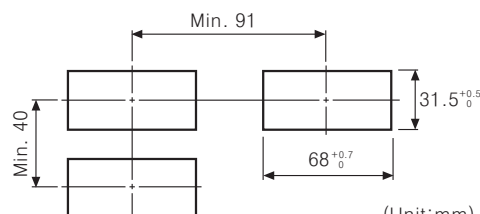
(Unit:mm)

▣ Parameter

Display		Function	Setting range
L-SC	Low scale	Low limit display value for 4mA input	−1.999 to 9.999 −19.99 to 99.99 −199.9 to 999.9 −1999 to 9999
H-SC	High scale	Hi limit display value for 20mA input	
dot	Decimal point	Set Decimal point position	0000, 000.0 00.00, 0.000
Inb.L	Input bias low	Correct the Low−limit value of display value(%)	−100 to 100
Inb.H	Input bias high	Correct the High−limit value of display value(%)	0.900 to 1.100
PEV.t	Peak time	See the peak value monitoring delay time	0 to 30sec.
dIS.t	Display cycle	Selectable sampling period(sec)	Selectable 0.5/1.0/ 2.0/3.0/4.0/5.0sec.
E.PCt	Error %	Display the measurement input is out of input range	E.PCt 0, E.PCt 1, E.PCt 2, E.PCt 3, E.PCt 4
LoC	Lock	Set the lock function	Selectable ON, OFF

▣ Factory default setting

Parameter	Parameter display	Factory default
Low limit display value for 4mA input	L-SC	0400
Hi limit display value for 20mA input	H-SC	2000
Set Dot position	dot	00.00
Correction of Low limit value input	Inb.L	0000
Correction of Hi limit value input	Inb.H	1.000
Peak value monitoring delay time	PEV.t	01 S
Display cycle	dIS.t	0.5 S
Set % of HHHH/LLLL display range	E.PCt	3
Lock setting	LoC	oFF

(A) Photo electric sensor
(B) Fiber optic sensor
(C) Door/Area sensor
(D) Proximity sensor
(E) Pressure sensor
(F) Rotary encoder
(G) Connector/ Socket
(H) Temp. controller
(I) SSR/ Power controller
(J) Counter
(K) Timer
(L) Panel meter
(M) Tacho/ Speed/ Pulse meter
(N) Display unit
(O) Sensor controller
(P) Switching power supply
(Q) Stepping motor & Driver & Controller
(R) Graphic/ Logic panel
(S) Field network device
(T) Production stoppage models & replacement

M4NS/ M4YS

▣Parameter group 0(Monitoring mode)

Run mode

MD key touch

PEℓH → 20.00 → 00.00

PEℓL → 4.00 → 00.00

run

Pressing MD key to enter monitoring mode in RUN mode.

Each peak value will be shown by pressing ◄ key in monitoring mode and peak value will be initialized by pressing ◄ key once more.

If no key touched for 60sec., it will return to RUN mode.

※When do not use monitoring function, set **00 5** for **PEℓ.t** in Parameter setting.

▣Parameter group 1

Run mode

MD key(3 sec.)

Display value for 4mA

L-SC → 0400 → 0400 → 0400 → 0400

※Move the setting digit by ◄ key and change the Low limit value by ▲ key.

Display value for 20mA

H-SC → 2000 → 2000 → 2000 → 2000

※Move the setting digit by ◄ key and change the High limit value by ▲ key.

dot → 00.00 → 0.000 → 0000 → 000.0

※Change the Dot position by ◄ key , ▲ key.

Correcting Low limit value input

Inb.L → 0000 → 0000 → 0000 → 0000

※Move the setting digit by ◄ key and change the Low limit corrected value by ▲ key.

Correcting High limit value input

Inb.H → 1.000 → 1.000 → 1.000 → 1.000

※Move the setting digit by ◄ key and change the High limit corrected value by ▲ key.

Peak value monitoring delay time

PEℓ.t → 00 5 → 01 5 ·········· 30 5

※Set peak value monitoring delay time. Setting range: 00 to 30 sec.
▲ key: Setting the delay time, ◄ key: Set "00" sec.

Display cycle

diS.t → 0.5 5 → 1.0 5 → 2.0 5 → 3.0 5
5.0 5 → 4.0 5

※Change the display cycle by ◄ or ▲ key.

HHHH/LLLL Set display range

E.PCt → 3 → 4 → 0 → 1
2

※Change HHHH/LLLL display value(%) by ◄ or ▲ key.

(★)Lock setting

LoC → oFF → on

※Set the Lock in order to disable the Parameter setting by ◄ or ▲ key.

※Press MD key to complete the setting and move to next Parameter in status of changing setting value.
※Press MD key is pressed for 3 sec. to move to RUN mode after displaying [run].
※If any key is untouched for 60 sec., it will return to RUN mode.
※(★)Lock setting ┌ oFF : Enable to change or set Parameter.
                 └ on : Disable to change or set Parameter but enable to check the setting value in Parameter group.
                        Disable to enter into the status of change setting value by pressing ◄, ▲ keys.

Autonics

Scaling Meter

■Application of connections

Temperature controller
Pressure Sensor
Converter

OUTPUT: DC4−20mA

D.P.M
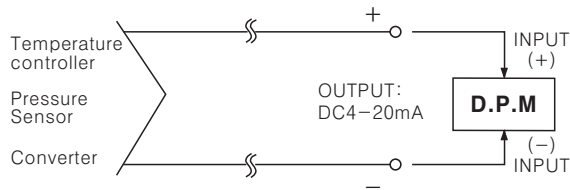
INPUT (+)
(−) INPUT

■Functions

◎Prescale function [L-SC / H-SC]

This function is to display the value setting certain Hi/Low limit value against DC4−20mA input. For example if set a=DC4mA, b=DC20mA and A, B as display value, it will be displayed a=A, b=B.
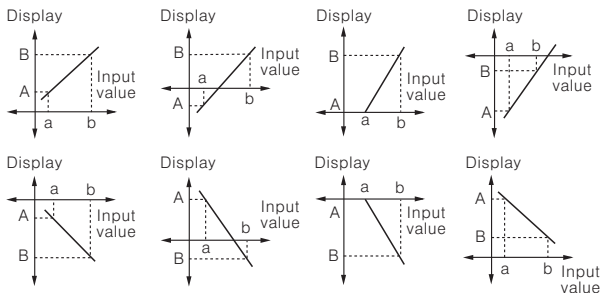
◎Decimal point setting function [dot]

This function is to set the decimal point position of display value(Set in Parameter setting group)

000.0 ◄ 00.00 ◄ 0.000 ◄ 0000
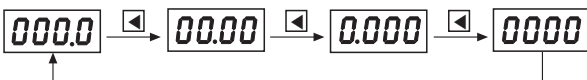
Able to use ◄(Shift) or ▲(Up) for moving decimal point.

◎Correction function [I nb.H / I nb.L]

This function is to adjust the error of display value after calculating scale value for measuring input and also correct the input error of sensor etc.

I nb.L : −100 to 100 [Adjust deviation of low value]
I nb.H : 0.900 to 1.100 [Correct gradient(%) of high value]

Ex) When display value is 0.0 to 500.0 against 4−20mA input,
if the display value is "1.2" for 4mA input, set −12(Ignore the decimal point) as I nb.L value to display "0.0".It is enable to remove offset of Low display value.

※When completed above Low value setting then apply 20mA, if the display value is "500.5, the correction value will be 5005/5000=0.999, set 0.999 as I nb.H value then enable to correct High value is 50005×0.999 = 5000).
It is also ignore the decimal point.

◎Display cycle delay function

It is difficult to display when the measuring input value is fluctuating. In this case it is able to make display value stable by delaying display cycle.
Display cycle can be changed in dIS.t mode of Parameter 2(Selectable 0.5s/1.0s/2.0s/3.0s/4.0s/5.0s). If select 5.0s, it will be the measuring input value on an average for 5sec., then display it every 5sec.

◎Error display function [E.PCt]

● Error setting and sort

It will display the error message according to the setting value which set % value against analog input range and set it in E.PCt mode by ◄ , ▲ key.

Error code	Error description
E.PCt 0	LLLL / HHHH are displayed when it is over **0**% out DC4−20mA range
E.PCt 1	LLLL / HHHH are displayed when it is over **1**% out DC4−20mA range
E.PCt 2	LLLL / HHHH are displayed when it is over **2**% out DC4−20mA range
E.PCt 3	LLLL / HHHH are displayed when it is over **3**% out DC4−20mA range
E.PCt 4	L-SC / H-SC are displayed always when it is out of DC4−20mA range

● Error display
① When LLLL flashs,
Input current is lower than 3% in 4−20mADC (16mA scale)
LLLL will flash when it is under 3.52mA [16mA×3%=0.48mA] → 4mA−0.48mA=3.52mA
When it is beyond Min. display value(−1999) [by display value]
② When HHHH flashs,
Input current is higher than 3% in 4−20mADC (16mA scale)
HHHH flash [16mA×3%=0.48mA] → 20mA+0.48mA=20.48mA.
When it is higher than 20.48mA.
When it is beyond Max. display value(9999) [by display value]

● Turn Error display off
LLLL and HHHH are displayed when input is out of measuring range, therefore it will be disappeared automatically when input returns to measuring range.

◎Display peak value monitoring function [PEtH / PEtL]

This function is to monitor Max. value and Min.value by current display value then display its Data in PEtH mode and PEtL mode.
Enable to set delay time in PEt.t mode to protect the wrong Data by initial over current and settable from 0 to 30sec. and start to monitor after delay time.

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(S) Field network device
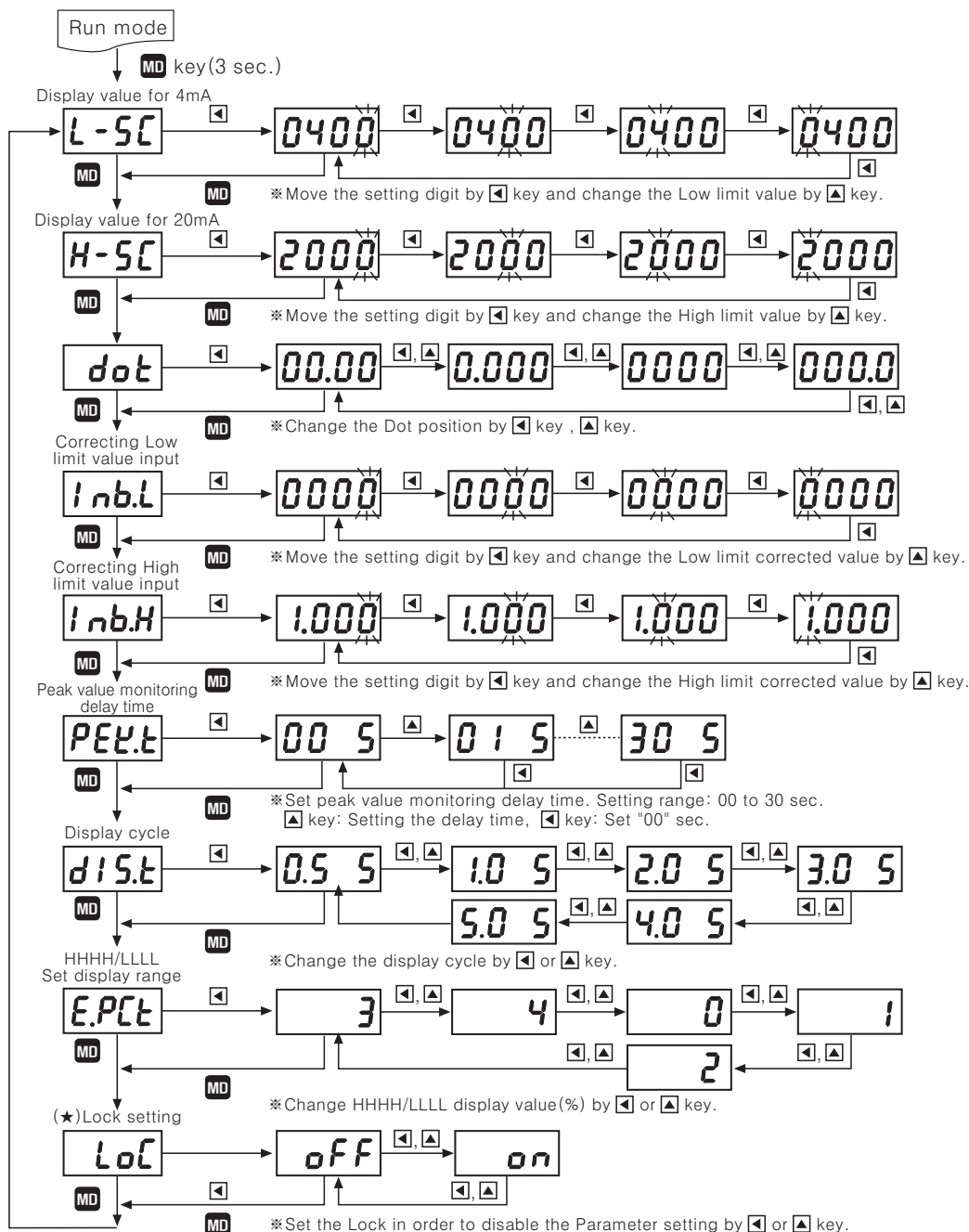(T) Production stoppage models & replacement

M4N Series

DIN W48×H24mm Small size digital panel meter

▣Features

- Max. display : 1999
- Auto Zero function and Hold function
- 7 Segment LED Display
- Power supply : 5VDC, 12-24VDC

⚠ **Please read "Caution for your safety" in operation manual before using.**

▣Ordering information

◎DC VOLT METER / DC AMPERE METER

| M | 4 | N | — | DV | — | 0 | 1 |
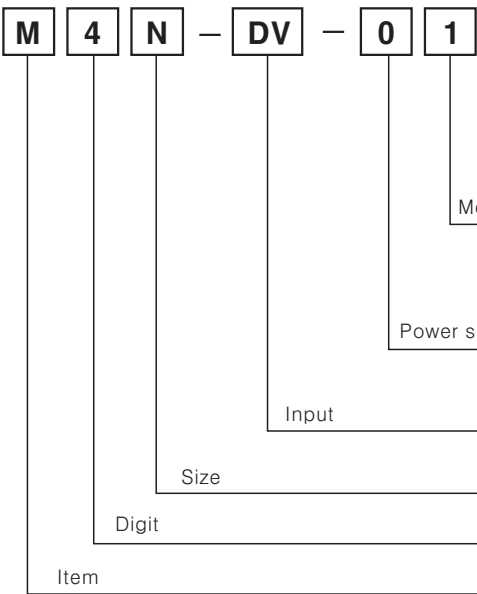
		DC voltage input F·S	DC current input F·S
Measuring input	1	199.9mV	199.9μA
	2	1.999V	1.999mA
	3	19.99V	19.99mA
	4	199.9V	199.9mA
	X	Option	Option

Power supply	0	5VDC
	1	12-24VDC

Input	DV	Volt meter
	DA	Ampere meter

Size	N	DIN W48×H24mm

Digit	4	1999(3½ Digit)

Item	M	Meter

※M4N series cannot measure AC voltage and ampere.
※Measuring range for direct connection is max. 200VDC, max. DC200mA.

◎DIGITAL SCALING METER

| M | 4 | N | — | DI | — | 0 | X |

Option	X	Option

Power supply	0	5VDC
	1	12-24VDC
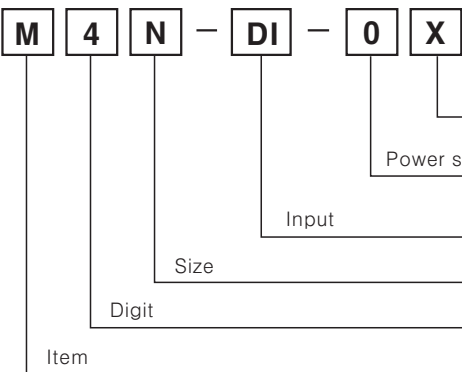
Input	DI	DC4-20mA(DC1-5V : Option)

Size	N	DIN W48×H24mm

Digit	4	1999(3½ Digit)

Item	M	Meter

※1-5VDC of measuring input specification is available by option.
  It will be a default value if there is no request for order.

Compact Panel Meter

▪Specifications

Model	**M4N-DV-**□□	**M4N-DA-**□□	**M4N-DI-**□□
Measurement input	DC voltage	DC ampere	DC4-20mA(1-5VDC Option)
Power supply	5VDC, 12-24VDC		
Allowable voltage range	90 to 110% of rated voltage		
Power consumption	2W		
Display method	7 Segment red LED display (Character height : 10mm)		
Display accuracy	F·S ±0.2% rdg ±1digit		
Sampling period	300ms		
A/D switching method	Dual integral method		
Response time	Approx. 2sec. (0 to Max.)		
Max. allowable input	150% of measurement input		
Sampling time	2.5 times/sec.		
Insulation resistance	Min. 100MΩ (at 500VDC megger)		
Dielectric strength	2000VAC 50/60Hz for 1 minute		
Noise strength	±100V the square wave noise (pulse width : 1μs) by the noise simulator		
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 1hour	
Vibration	Malfunction	0.5mm amplitude at frquency of 10 to 55Hz in each of X, Y, Z directions for 10minutes	
Shock	Mechanical	300m/s² (30G) in X, Y, Z direction	
Shock	Malfunction	100m/s² (10G) in X, Y, Z direction	
Ambient temperature	-10 to 50℃ (at non-freezing status)		
Storage temperature	-20 to 60℃ (at non-freezing status)		
Ambient humidity	35 to 85%RH		
Unit weight	Approx. 44g		

▪Connection

SOURCE(★) [Decimal point position selection] INPUT

1	2	3	4	5	6	7	8	9	10
			10^3	10^2	10^1	COM	LO		HI

Hold   Dot

(★) 5VDC, 12-24VDC
※In case of changing position of decimal point, disconnect switching pattern point on PCB and connect terminal contact according point to be changed.
※Socket pin 9, NC terminal, is not connected at inside.

※Socket Pin NO : 1 2 3 4 5 6 7 8 9 10

(A) Photo electric sensor
(B) Fiber optic sensor
(C) Door/Area sensor
(D) Proximity sensor
(E) Pressure sensor
(F) Rotary encoder
(G) Connector/ Socket
(H) Temp. controller
(I) SSR/ Power controller
(J) Counter
(K) Timer
(L) Panel meter
(M) Tacho/ Speed/ Pulse meter
(N) Display unit
(O) Sensor controller
(P) Switching power supply
(Q) Stepping motor & Driver & Controller
(R) Graphic/ Logic panel
(S) Field network device
(T) Production stoppage models & replacement

M4N Series

▣ Dimensions

● Bracket

48
24
36
63
4
37
22
10
21

199.9

58

● Paenl cut−out

Min. 60
Min. 37
21.5 $^{+0.5}_{0}$
45.5 $^{+0.5}_{0}$
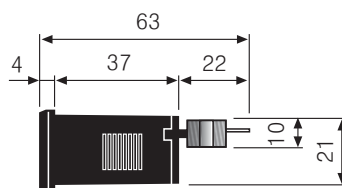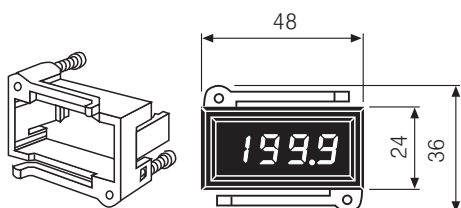
(Unit:mm)

▣ Connections

◎ DC voltmeter connection

+
−
V1
Load
M4N
Hi
Low
Power supply

(Fig. 1) Measuring input (V1) is under 200VDC

Multiplier

+
−
V1
Load
V2
R1
R2
M4N
Hi
Low
Power supply
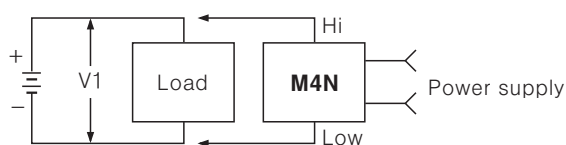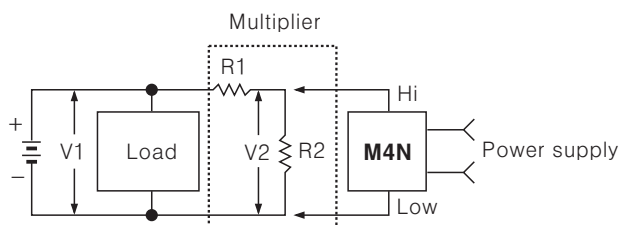
(Fig. 2) Measuring input(V1) is under 200VDC

※When the measuring voltage is over 200VDC,
please select R1 and R2 in order to make V2
less than max. measuring voltage using multiplier.

$$V2 = \frac{R2}{R1+R2} \times V1 \qquad R1 > R2$$

◎ Scaling meter connection

Temperature
Sensor

Pressure
Sensor

Converter

Output:
DC4−20mA
(1−5VDC)

+
−
M4N
Hi
Low
Power supply

※1−5VDC output of converter is sold separately.

◎ DC amperemeter connection

I
V
+
−
Load
M4N
Hi
Low
Power supply
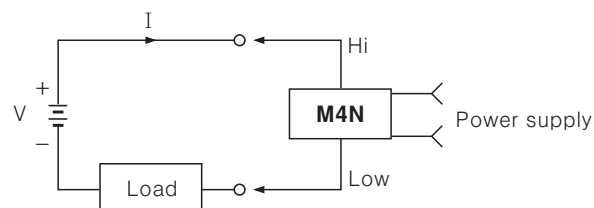
(Fig. 3) Measuring current is under DC200mA

I
V
+
−
Shunt
Load
50mVDC
M4N
Hi
Low
Power supply
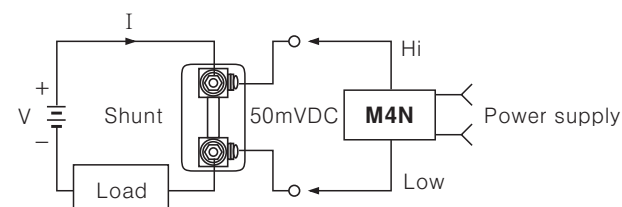
(Fig. 4) Measuring current is over DC200mA

※When the current is higher than DC200mA, please
use shunt.

※Second section of shunt is DC50mV.

Autonics

▣Proper usage

◎Caution for selecting and using products

- ●Be careful customized product by requirement cannot be replaced.
- ●When power is applied, it may display arbitrary number, because measuring input terminal is opened. If connect Low terminal of measuring input to GND, it displays "000".
- ●If it indicates 1 or −1 during input signal is ON, please turn OFF the power and check the connection condition, because the input signal is too low or high.
- ●When measuring voltage is higher than 200VDC, please divide the voltage with multiplying resistance to make lower than 200VDC.
  (Refer to the connection method of DC voltmeter in the application of connections)
  Ex)Measuring 1000VDC
    As the above connection figure of DC voltmeter, select the R1 value to make 200VDC on R2.
    (Generally R1 value will be higher than R2 value.)
    Order the D.P.M indicating 1000V for 300VDC.
- ●Select another item or use shunt for over than DC200mA of measured value.
  (See the connection method of DC current for the application of using shunt.)
  Ex)In case of measuring 20ADC
    Use the shunt used for 20ADC/DC50mV and the specification should be ordered as M4N−DV−X DC50mV/19.99.
    ※Our company does not sell a shunt.
      Please connect our distributor to purchase the item.
- ●M4N series is produced for 5VDC and 12−24VDC. Therefore, before you order the item please check the model again.
- ●The specification of measurement input, which is indicated in model ordering, is a standard specifi−cation,1:1 of measurement input and processing value. The additional specifications can be customizable.
  * The application of M4N−DV/M4N−DA
    M4N − DV − 0X　10VDC / 100.0
    M4N − DA − 0X　DC50mA / 199.9
  * The application of M4N−DI
    M4N − DI − 0X　DC4−20mA / 100.0
  Note)If measurement input is 1−5VDC, please indicate it. Otherwise, it will be produced with DC4−20mA.

●Indicating method of unit
  M4N is not indicated a unit on the product, therefore please indicate it in panel.

Panel
Unit
M4N
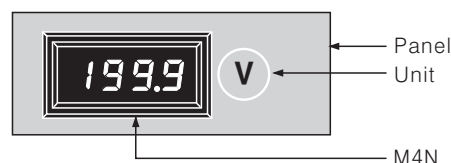
●Display of decimal point
  The displaying decimal point is set in the product by your order.
  (The prior products display the decimal point by using jump line in external connector like as connection figures.)
  After purchasing the product, do not change the decimal point. If you need to change it, please connect us or distributor.

◎Caution for connecting M4N

- ●In case of using both voltmeter and amperemeter
  Because the connection of measurement input terminal and power terminal is not insulated, when you use voltmeter and amperemeter by connecting one set, please provide individual power. In case of using same power, it may damage the product.
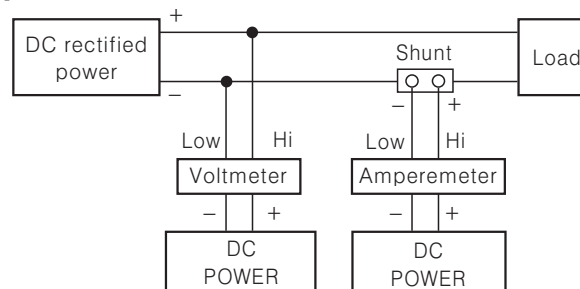
- ●It is available using several voltmeters with providing one DC power. However, the potential difference between − of measurement input and − of power may cause an error.
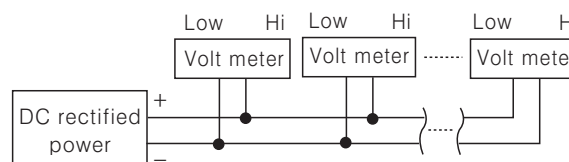
  ※Amperemeter cannot be used with above connection. Please provide power separately.
- ●Make sure to check the polarity of provided power before turn ON the power.
  (If the polarity is connected reversely, internal circuit could be damaged.)
- ●Please check if the pin numbers are changed after connecting.

M4V

W75×H25mm Digital graphic panel meter for mosaic panel

▣Features

- ●Various input function
  : 0−2VDC, 0−10VDC, 1−5VDC,
    DC0−1mA, DC4−20mA
- ●Prescale function(High / Low scale setting)
- ●Max. display : −999 to 9999
- ●Error display function or self diagnosis function
- ●High quality by microprocessor built−in
- ●Display accuracy : F・S ±0.2% rdg ±1digit

⚠ **Please read "Caution for your safety" in operation manual before using.**

▣Ordering information

| M | 4 | V | − | ☐ |

Input
| Blank | Standard |
| X | Option |

Size
| V | W75 × H25mm |

Digit
| 4 | 9999(4 Digit) |

Item
| M | Meter |

※It is enable to customized with another specifications except for standard one.

▣Specifications

Model		M4V
Measurement input		DC voltage, DC ampere, DC4−20mA, 1−5VDC
Power supply		12−24VDC
Allowable voltage range		90 to 110% of rated voltage
Power consumption		Approx. less than 2W
Display method		7 Segment red LED display(Segment height : 14mm)
Display accuracy		0 to 50℃ : F・S ±0.2%, −10 to 0℃ : F・S ±0.3%(rdg ±1digit)
Sampling period		0.5 sec.
Setting method		Scale set by front switches
Max. allowable input		150% of measurement input
Set−diagnosis		Error indication
Insulation resistance		Min. 100MΩ (at 500VDC megger)
Dielectric strength		2000VAC 50/60Hz for 1 minute
Noise strength		±300V the square wave noise(pulse width : 1μs) by the noise simulator
Vibration	Mecanical	0.75mm amplitude at frequency of 10 to 50Hz in each of X, Y, Z directions for 1hour
	Malfunction	0.5mm amplitude at frequency of 10 to 50Hz in each of X, Y, Z directions for 10minutes
Shock	Mecanical	300m/s² (30G) in X, Y, Z direction for 3 times
	Malfunction	100m/s² (10G) in X, Y, Z directions for 3 times
Ambient temperature		−10 to 50℃ (at non−freezing status)
Storage temperature		−20 to 60℃ (at non−freezing status)
Ambient humidity		35 to 85%RH
Unit weight		Approx. 83g

Autonics

Graphic Panel Meter

(A) Photo electric sensor
(B) Fiber optic sensor
(C) Door/Area sensor
(D) Proximity sensor
(E) Pressure sensor
(F) Rotary encoder
(G) Connector/ Socket
(H) Temp. controller
(I) SSR/ Power controller
(J) Counter
(K) Timer
(L) Panel meter
(M) Tacho/ Speed/ Pulse meter
(N) Display unit
(O) Sensor controller
(P) Switching power supply
(Q) Stepping motor & Driver & Controller
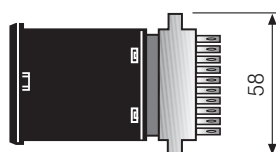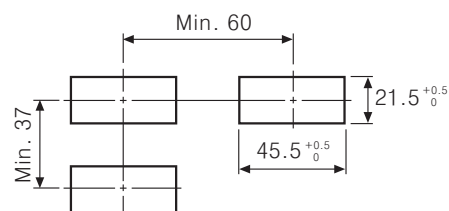(R) Graphic/ Logic panel
(S) Field network device
(T) Production stoppage models & replacement

■Dimensions

● Panel cut-out

75   15   91   Min. 100   25   22   Min. 33   23 +0.5 / 0   70 +0.5 / 0

(Unit:mm)

※It is attached on mosaic graphic panel. Please mount the unit properly on general panel.

■Input and connection

Input	Display	Connection
0-2VDC	*0-2U*	0-2VDC, 1-5VDC, 0-10VDC SOURCE HI LOW − + 1 2 3 4 5 6
1-5VDC	*1-5U*	
0-10VDC	*0-10*	
DC0-1mA	*InA*	DC0-1mA SOURCE HI LOW − + 1 2 3 4 5 6
DC4-20mA	*4-20*	DC4-20mA SOURCE HI LOW − + 1 2 3 4 5 6

■Factory default setting

In-t	*0-2U*	*dot*	*0.0*
L-SC	*0.0*	*In-b*	*00*
H-SC	*100.0*	*LoC*	*oFF*

■Error display

Display indicates "Error" when wrong measuring input value is applied.

◎Display an Error
  ● In case of lower value than measuring input value.
    Ex) In case of applying DC2mA when measuring input range is selected as DC4-20mA : "*LLLL*" flashes.
  ● In case of higher value than measuring input value.
    Ex) In case of applying DC22mA when measuring input range is selected as DC4-20mA : "*HHHH*" flashes.
  ● In case of damaging the memory chip by high frequency noise, strong surge noise : "*Er-E*" flashes.

◎Cancellation of Error
  ● "*HHHH*" and "*LLLL*" Error is to exceed measuring input range, therefore if measuring input value is applied within input range, Error message will be cleared automatically.
  ● "*ouEr*" is indicated by mis-connection or in case of occuring something wrong in measuring input.
    Please cut off the power and then check measuring input.
  ● "*Er-E*" indicates data damage programmed in memory chip, and damaged data can not be recovered.
    Ask a dealer shop for A/S.
    It is impossible to clear "Er-E" by end-user, therefore it must be repaired by our engineer.

M4V

▣Parameter description

RUN

Press ⓐ + ◁ Keys at the same time for 3 sec.

In-t — Select measuring input specification — Flashes after 2sec.

0-2U → **1-5U** → **0-10** → **InA** → **4-20**

Input	Display	Connection
0−2VDC	0-2U	0−2VDC, 1−5VDC, 0−10VDC HI ↓ LOW ↓ [1] [2] [3] [4]
1−5VDC	1-5U	
0−10VDC	0-10	
DC0−1mA	InA	DC0−1mA HI ↓ LOW ↓ [1] [2] [3] [4]
DC4−20mA	4-20	HI ┌DC4−20mA┐ LOW [1] [2] [3] [4]

L-SC — Low limit scale setting — Flashes after 2sec.

Final digit flashes **0000**

※Set low scale value by ◁ key and ⓐ key.
※Setting range : −999 to 9999

H-SC — High limit scale setting — Flashes after 2sec.

Final digit flashes **0.0**

※Set high scale value by ◁ key and ⓐ key.
※Setting range : −999 to 9999

dot — Decimal point setting — Flashes after 2sec.

0.0 → **0.00** → **0.000** → **0**

Decimal point flashes

In-b — Correction value for input — Flashes after 2sec.

0000

※Correct an error occured in input sensor by ◁ Key(Digit shift) and ⓐ Key(DATA setting).
※Display from "0", Setting range : −99 to 99

LoC — Lock setting value — Flashes after 2sec.

Enable to change DATA **oFF** → Disable to change DATA **on**

◎How to change the setting value

1. When advance to MODE, change digit flashing by ◁ Key then set DATA value by ⓐ Key.
2. After complete DATA value setting, please press ⓐ Key for 2sec. then it will move to next MODE saving DATA.
3. Press ⓐ Key for 2sec. to return RUN mode after changing(Setting) DATA value in each MODE.

※Press ⓐ Key for 2sec., then it will retrun to RUN without change setting value.
※When checking the setting value only in each mode. Press ⓐ Key for 2sec., then press for 2sec. again.
   (If press continuously, it will not advance to next mode and return to RUN mode)
※If any key is untouched for 60sec., it will return to RUN mode.

Autonics

Graphic Panel Meter

■Prescale function

This function is to display setting of particular high/low−limit value in order to display high/low−limit value of measuring input.

If measuring inputs are a or b and display values are A or B, it will display a=A, b=B as below graph.

① ② ③ ④ ⑤ ⑥
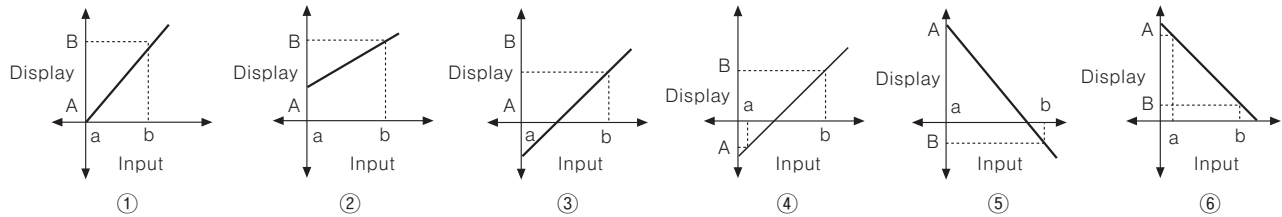
Ex) Able to set the display value for input as certain value (Not "0") by using prescale function.

Measuring input	Prescale setting value		Display	Graph
0−10VDC	L−Scale : 0	H−Scale : 200	0 to 200	①
	L−Scale : 50	H−Scale : 200	50 to 200	②
	L−Scale : −100	H−Scale : 200	−100 to 200	③
	L−Scale : 200	H−Scale : −50	200 to −50	⑤

※Prescale value setting range → L−SC(Low limit) : −999 to 9999, H−SC(High limit) : −999 to 9999
But, there must be offset "1" between L−SC and H−SC.

■Application of connections

Temperature Sensor
Pressure Sensor
Converter

Output :
0−2VDC
1−5VDC
0−10VDC
DC0−1mA
DC4−20mA

(+)
HI
M4V
LOW
(−)
Power supply
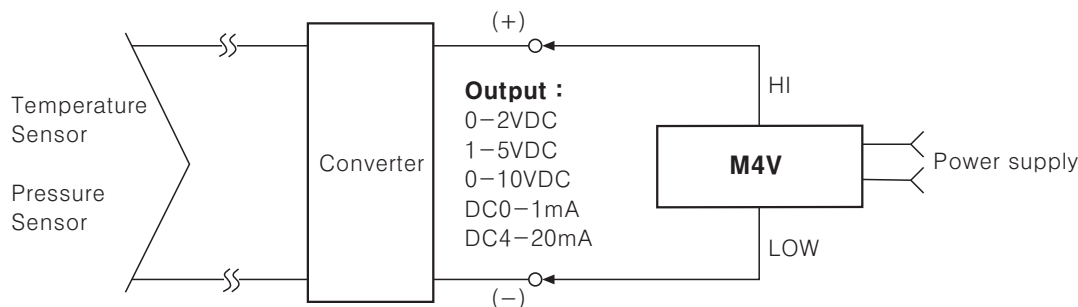
■Proper usage

● Please read this catalog before purchase Panel meter.
● Ambient condition
 • Please use this product under −10 to 50℃ of ambient operating temperature and less than 35 to 85%RH of humidity. Moreover, use this item near normal temperature 20℃, the most important condition, which manages the accuracy.
 • Please avoid the condition of dew status by rapidly changing temperature.
 • Please avoid too much vibration or shock.
 • Please avoid the place where there are dreg, dust, and chemical agent or gas, which is destructive to electrical parts.
 • Do not use this item where the voltage or noise is over the proper specification.
  It may cause malfunction.

● Storage
 When you keep it, please avoid a direct ray of light and keep it under −20 to 60℃ of ambient operating temperature and less than 35 to 85%RH of humidity. Wrap and keep it as initial state.
● Input Line
 Shield wire must be used when the measuring input line is getting longer or there are too much noise.

●Using shield with two wires | ●Using shield with one wire
Vin — Hi **M4V** Low | Vin — Hi **M4V** Low

MT4N Series

DIN W48×H24mm Small size digital multi panel meter

▣Features

- Various output options(Default : Indicator)
  RS485 communication output, current(DC4-20mA),
  NPN/PNP open collector output, relay contact output
- Max. measuring inputs
  : DC500V, AC500V, DC5A, AC5A
- Display range : -1999 to 9999
- High/Low scale
- AC frequency measurement : Range 0.1 to 9999Hz
- Various functions : Monitoring function for max. and
  min. display value function, display cycle delay function,
  zero function, high display correction function,
  current output scale function
- Power supply : 12-24VDC/VAC

⚠ **Please read "Caution for your safety" in operation
manual before using.**

CE

▣Ordering information

MT	4	N	−	DV	−	E	N
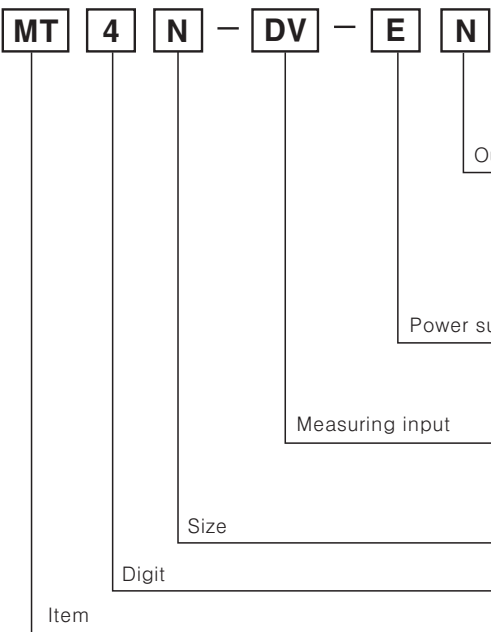
	N	Indicator(No output function)
	0	Relay contact output
	1	NPN open collector output
Output	2	PNP open collector output
	3	Relay contact output+Transmission output(DC4-20mA)
	4	Relay contact output+RS485 communication output

※Output(0 to 4) : Option

Power supply	E	12-24VDC/AC

	DV	DC voltage
	DA	DC ampere
Measuring input	AV	AC voltage
	AA	AC ampere

Size	N	DIN W48×H24mm

Digit	4	9999(4 Digit)

Item	MT	Multi Meter

※To measure the current over 5ADC, please select DV type because the shunt should be used.

▣Front panel identification
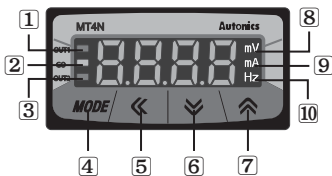
1 OUT1 : Preset output of OUT1
2 GO : Preset Go output of OUT1/OUT2
3 OUT2 : Preset output of OUT2
4 MODE key : Mode key
5 《 : Shift key
6 ≫ : Down key
7 ≪ : Up key
8 mV, V unit
9 mA, A unit
10 Hz unit

※There is no 1, 2, 3 on a display panel of MT4N-□□-EN.
※MT4N-□□-E3, E4 model has output display part of OUT1 only.

Multi Panel Meter

(A) Photo electric sensor

(B) Fiber optic sensor

(C) Door/Area sensor

(D) Proximity sensor

(E) Pressure sensor

(F) Rotary encoder

(G) Connector/ Socket

(H) Temp. controller

(I) SSR/ Power controller

(J) Counter

(K) Timer

(L) Panel meter

(M) Tacho/ Speed/ Pulse meter

(N) Display unit

(O) Sensor controller

(P) Switching power supply

(Q) Stepping motor & Driver & Controller

(R) Graphic/ Logic panel

(S) Field network device

(T) Production stoppage models & replacement

■Specifications

Series	MT4N-DV-E□	MT4N-DA-E□	MT4N-AV-E□	MT4N-AA-E□
Measurement input	DC voltage, ampere		AC voltage, ampere, Frequency	
Power supply	12−24VDC/AC(90 to 110% of rated voltage)			
Power consumption	DC : 3W, AC : 5VA			
Display method	7Segment LCD display, Character height : 9mm			
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			
Max. allowable input	110% for input spec.			
A/D conversion method	Practical oversampling using successive approximation ADC			
Sampling cycle	DC type : 50ms, AC type : 16.6ms(Resolution 1/12000)			
Max. display range	−1999 to 9999(4 Digit)			
Preset output	• Relay output ☞ Contact 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 wires half duplex, Tuning method : Sub−synchronization, Protocol : Modbus RTU • Transmission(DC4−20mA) output ☞ Resolution : 12,000 division(Load resistance max. 600Ω)			
AC measuring function	(★1)		Selectable RMS or AVG	
Frequency measuring function	(★1)(★2)　　Measurement range : 0.100 to 9999Hz(Differ according to decimal point position)			
Hold function	(★3)	Includes(Outer hold function)		
Insulation resistance	Min. 20MΩ (at 500VDC megger)			
Dielectric strength	1000VAC 50/60Hz for 1 minute(Between external terminal and case)			
Noise strength	±2kV the square wave noise(pulse width : 1μs) by the noise simulator			
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2hour		
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 10minutes		
Shock	Mechanical	100m/s² (10G) in X, Y, Z directions for 3 times		
	Malfunction	300m/s² (30G) in X, Y, Z directions for 3 times		
Ambient temperature	−10 to 50℃(at non−dew status)			
Storage temperature	−20 to 60℃(at non−dew status)			
Ambient humidity	35 to 85%RH			
Insulation type	(★4)	回		
Approval	CE			
Unit weight	Approx. 65g			

※(★1) AC measuring function, and frequency measuring function are only for AC measuring input type.
※(★2) Frequency measuring accuracy : 1kHz Max. ±0.1% F.S, 1kHz to 10kHz Max. ±0.3% F.S
※(★3) The indicator has no hold function.
※(★4) "回" Mark indicated that equipment protected throughout by double insulation or reinforced insulation.

■Connections

◎Measuring input terminal connection

●MT4N-DV-E□

| 1 | 2 | 3 | 4 | 5 | 6 |
250mV /50mV
5V/1V
50V/10V
SOURCE 12−24VDC/AC

●MT4N-DA-E□

| 1 | 2 | 3 | 4 | 5 | 6 |
5mA/ 2mA
50mA/4−20mA
500mA/200mA
SOURCE 12−24VDC/AC

●MT4N-AV-E□

| 1 | 2 | 3 | 4 | 5 | 6 |
5V/ 2.5V
50V/25V
250V/125V
SOURCE 12−24VDC/AC

●MT4N-AA-E□

| 1 | 2 | 3 | 4 | 5 | 6 |
100mA /50mA
500mA/250mA
5A/2.5A
SOURCE 12−24VDC/AC
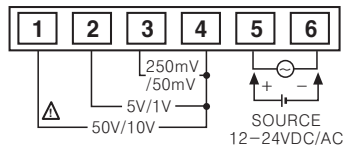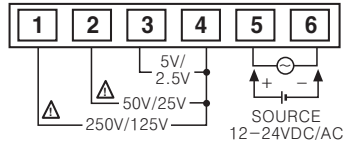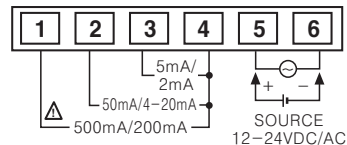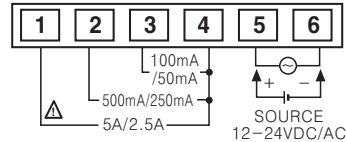
⟨Option⟩

●Relay output [MT4N-□□-E0]

| 7 | 8 | 9 | 10 | 11 | 12 |
OUT1　　OUT2　　HOLD/ZERO

●NPN open collector output [MT4N-□□-E1]

| 7 | 8 | 9 | 10 | 11 | 12 |
OUT1　GO　OUT2　COM　HOLD/ZERO

●PNP open collector output [MT4N-□□-E2]

| 7 | 8 | 9 | 10 | 11 | 12 |
OUT1　GO　OUT2　COM　HOLD/ZERO
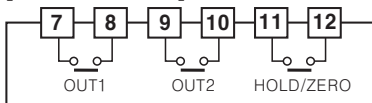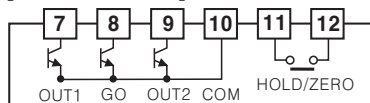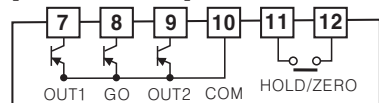
●Relay+Current(DC4−20mA) output [MT4N-□□-E3]

| 7 | 8 | 9 | 10 | 11 | 12 |
+　　　−
DC4−20mA　　OUT1　　HOLD/ZERO
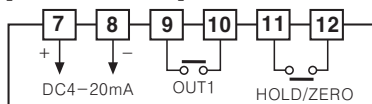
●Relay+RS485 communication output [MT4N-□□-E4]
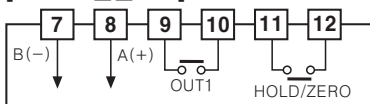
| 7 | 8 | 9 | 10 | 11 | 12 |
B(−)　　A(+)
OUT1　　HOLD/ZERO

MT4N Series

▣Dimensions

● MT4N−□□−EN

48   3   83   ●Panel cut-out

24   22.2 $_{-0.2}^{0}$

Min. 55

Min. 37   22.2 $_{0}^{+0.3}$

45 $_{0}^{+0.6}$
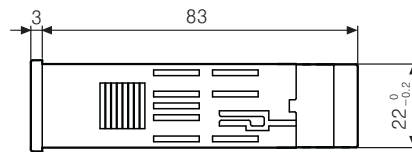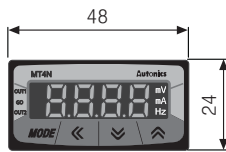
● MT4N−□□−E0

● MT4N−□□−E1, E2   ● MT4N−□□−E3, E4
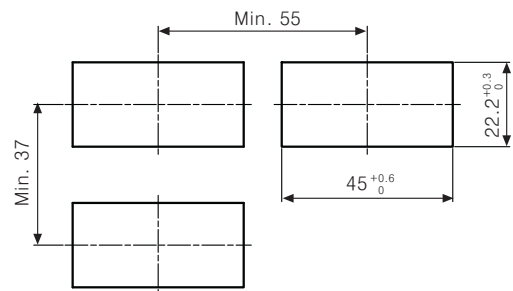
※Process the unit after consider the above recommened cut-out fully.

(Unit:mm)

▣Parameter setting

RUN

Press MD Key   Press MD Key for 2sec.   Press MD Key for 3sec.

PA 0   **PA 1**

Press MD Key   Press MD Key for 3sec.

PA 2

Press MD Key for 3sec.
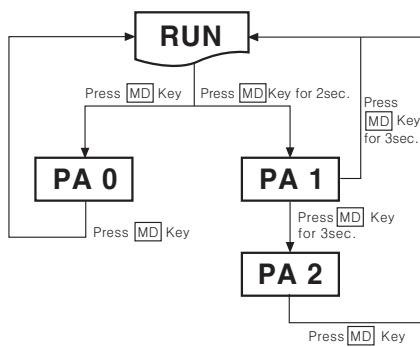
※Press MODE key in **RUN** status, it will advance to **PA-0** group.
※Press MODE key in **RUN** status over 2sec., **PA-1** is displayed.
※Press MODE key in **RUN** status over 5sec., **PA-2** is displayed after **PA-1** and it stops at **PA-2** as press MODE key continuously.
※When release MODE key at displaying **PA-1** or **PA-2**, then it will advance to each parameter.
※Press MODE key over 3sec. at any position of **PA-1** or **PA-2**, it returns to **RUN** mode automatically.
※If any key is untouched for 60sec. in each parameter, it returns to **RUN** mode automatically.
※Press MODE key within 2sec. after return to **RUN**, it advance to previous parameter again. (See the below procedure of each parameter to set.)
※It cannot advance to **PA-0** when preset output operation mode of **PA-2** is **oFF**.

▣Change the parameter setting value

1. Advance to the parameter to be changed when press MODE key continuously in RUN mode and release MODE key at the parameter. (Refer to "▣ Parameter setting".)
2. When press MODE key in each parameter, the initial mode of the parameter is displayed. (Refer to the description of each parameter.)
3. When press one of ≪, ≫, ≫ keys in display mode, saved setting value is displayed.
   Ex)

   `In-r` ≪ ≫ ≫ → `250` V Saved setting value
   Select one   flashes every 0.5sec.

4. Change the setting value by ≫ or ≫ key.
   Ex) Change AC type measuring input from 250V to 125V.

   `In-r` ≪ ≫ ≫ → `250` V ≫ ≫ → `125` V MODE
   Select one

   `dISP`
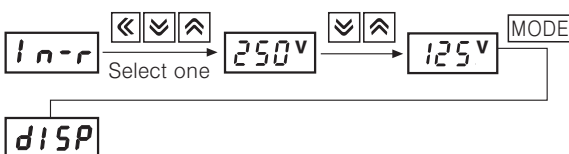
5. When press MODE key to complete the change and it is advanced to the next mode after flash 2 times.
6. When press MODE key for 3sec. after change, it returns to RUN mode.

Multi Panel Meter

(A) Photo electric sensor
(B) Fiber optic sensor
(C) Door/Area sensor
(D) Proximity sensor
(E) Pressure sensor
(F) Rotary encoder
(G) Connector/ Socket
(H) Temp. controller
(I) SSR/ Power controller
(J) Counter
(K) Timer
(L) Panel meter
(M) Tacho/ Speed/ Pulse meter
(N) Display unit
(O) Sensor controller
(P) Switching power supply
(Q) Stepping motor & Driver & Controller
(R) Graphic/ Logic panel
(S) Field network device
(T) Production stoppage models & replacement

■Parameter group 1

● Measuring input chart by model

Item	Range of measuring input
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

0	1 to 9999Hz
0.0	0.1 to 999.9Hz
0.00	0.10 to 99.99Hz
0.000	0.100 to 9.999Hz

※In case of selecting frequency display, no output will be provided even if it is output support models (Main output, Sub output and RS485 output).

It corrects a gradient of display value against max. input.
Setting range:0.001 to 9.999

Set **I nb.H**.
Setting range:10^{-2} to 10^1

※After setting each mode, press MODE key for 2sec. to return to RUN.
※If any key is untouched for 60sec. after advance to Parameter, it will return to RUN.

◎Factory defaults

Mode	MT4N−DV	MT4N−DA	MT4N−AV	MT4N−AA	Mode	MT4N−DV	MT4N−DA	MT4N−AV	MT4N−AA
I n-r	50	500	250	5	I nb.H	1.000	1.000	1.000	1.000
dISP	Stnd	Stnd	Stnd	Stnd	I nb.L	00	00	00	00
I n-t	——	——	AuG	AuG	dot	0.00	0.0	0.0	0.000
Stnd	50.00	500.0	250.0	5.000	I nb.E	——	——	10-0	10-0

MT4N Series

▣Parameter group 2

RUN

Press MODE key for 5sec.

PA 2

Move after 1sec.

oU1.t ≪ → **oFF**

Select Preset output mode of OUT1. (But, it is only displayed in OUT1 output included model.)

oFF ⇄ HI ⇄ Lo ⇄ HL ⇄ HL-G

oU2.t ≪ → **oFF**

Select Preset output mode of OUT2. (But, it is only displayed in OUT2 output included model.)

oFF ⇄ HI ⇄ Lo ⇄ HL ⇄ HL-G

HYS.1 ≪ → **00.01**

Select Preset hysteresis of OUT1.
The range is within 10% of max. display range (Unit : digit) When resolution is over 10000, it is fixed as 9999.
※**ou1.t** mode is **oFF**, it is not displayed.

HYS.2 ≪ → **00.01**

Select Preset hysteresis of OUT2.
The range is within 10% of max. display range (Unit : digit) When resolution is over 10000, it is fixed as 9999.
※**ou2.t** mode is **oFF**, it is not displayed.

PER.t ≪ → **00 5**

Set a monitoring delay time for displayed peak value.
Setting range : 00 to 30sec.

dIS.t ≪ → **0.2 5**

Set a display cycle.
Setting range : 0.1 to 5.0sec.

Colr ≪ → **rEd**

Selectable color with 4 modes.

rEd ⇄ Grn ⇄ YEL ⇄ r-G ⇄ G-r

• red, green, yellow:Display with 1 color. • r−G, G−r:Color is changed when error is occurred.
Ex)r−G:Red is standard and green when error is occurred.
※Color is changed only when error in "▣ **Error display function**" is occurred excluding 'over'.

ΞEro ≪ → **no**

Select zero function with operation at front.
When ≪ + ⋀ key are pressed for 3 sec. to set **YES**, it will be zero function and the deviation
value is saved automatically at **1 nb.L** mode.

EuIn ≪ → **HoLd**

Select Hold input with 11, 12 terminal or zero function for external signal.
(Set with ≪, ⋀ key)
HoLd : Holding display value, **ΞEro** : Zero function using Hold/Zero terminal

FS-H ≪ → **50.00**

Set the high limit value, output point of current output 20mA.
(When changing measuring input and prescale mode, it is changed automatically as maximum value
of input range.)

FS-L ≪ → **00.00**

Set the low limit value, output point of current output 4mA.
(When changing measuring input and prescale mode, it is changed automatically as minimum value
of input range.)

AdrS ≪ → **01**

Set the address of RS485 communication output.
Setting range : **01** to **99**

bPS ≪ → **9600**

Select Baud rate of RS485 communication output.
Setting range : **9600** ⇄ **4800** ⇄ **2400** ⇄ **1200**

LoC ≪ → **oFF**

Set key lock function and select from 4 types.

oFF ⇄ LoC1 ⇄ LoC2 ⇄ LoC3

oFF	Disable to lock keys
LoC1	Lock Parameter 1
LoC2	Lock Parameter 1, 2
LoC3	Lock Parameter 0, 1 and 2

※The dotted mode is only displayed for output type.
※After setting each mode, press MODE key for 2sec. to return to **RUN** mode.
※If any key is untouched for 60sec. after advance to PARAMETER, it will return to **RUN** mode.
※The min. setting interval between **FS-H** and **FS-L** is 10% F • S, it is fixed as 10% of the setting value when it is small.

◎Factory defaults

Mode	MT4N−DV	MT4N−DA	MT4N−AV	MT4N−AA	Mode	MT4N−DV	MT4N−DA	MT4N−AV	MT4N−AA
oU1.t	oFF	oFF	oFF	oFF	ΞEro	no	no	no	no
oU2.t	oFF	oFF	oFF	oFF	EuIn	HoLd	HoLd	HoLd	HoLd
HYS.1	00.01	000.1	000.1	0.001	FS-H	50.00	500.0	250.0	5.000
HYS.2	00.01	000.1	000.1	0.001	FS-L	00.00	000.0	0.0	0.000
PER.t	00 5	00 5	00 5	00 5	AdrS	01	01	01	01
dIS.t	0.2 5	0.2 5	0.2 5	0.2 5	bPS	9600	9600	9600	9600
Colr	rEd	rEd	rEd	rEd	LoC	oFF	oFF	oFF	oFF

Autonics

■Parameter group 0

```
RUN
  │
  Press MODE key
  │
  ▼
[oU 1.H] ≪ → [50.00]   Set High−limit preset value of OUT1. (Set with ≪, ⊼, ⊻ key)
 MODE      MODE         ※It is displayed when set the preset only.
  │                          When set off in oUt.t mode if PA−2, the parameter is not displayed.
  ▼
[oU 1.L] ≪ → [00.00]   Set Low−limit preset value of OUT1. (Set with ≪, ⊼, ⊻ key)
 MODE      MODE         ※It is displayed when set the preset only.
  │                          When set off in oUt.t mode if PA−2, the parameter is not displayed.
  ▼
[oU2.H] ≪ → [50.00]    Set High−limit preset value of OUT2. (Set with ≪, ⊼, ⊻ key)
 MODE      MODE         ※It is displayed when set the preset only.
  │                          When set off in oUt.t mode if PA−2, the parameter is not displayed.
  ▼
[oU2.L] ≪ → [00.00]    Set Low−limit preset value of OUT2. (Set with ≪, ⊼, ⊻ key)
 MODE      MODE         ※It is displayed when set the preset only.
  │                          When set off in oUt.t mode if PA−2, the parameter is not displayed.
  ▼
[H.PEⱯ] ≪ → [0.0]      It shows High−limit monitoring value while it is RUN status.
 MODE      MODE         It will be reset by pressing any ≪, ⊼, ⊻ key.
  │
  ▼
[L.PEⱯ] ≪ → [0.0]      It shows Low−limit monitoring value while it is RUN status.
 MODE      MODE         It will be reset by pressing any ≪, ⊼, ⊻ key.
                        ※If "00" is set in PEⱯ.t mode of PA−2, H.PEⱯ and L.PEⱯ modes will not be displayed.
```

※If any key is untouched for 60sec. after advance to Parameter, it will return to RUN mode.

◎Factory defaults

Mode	MT4N−DV	MT4N−DA	MT4N−AV	MT4N−AA	Mode	MT4N−DV	MT4N−DA	MT4N−AV	MT4N−AA
oU 1.H	50.00	500.0	250.0	5.000	oU2.L	00.00	000.0	000.0	0.000
oU 1.L	00.00	000.0	000.0	0.000	H.PEⱯ	0.00	0.0	0.0	0.000
oU2.H	50.00	500.0	250.0	5.000	L.PEⱯ	0.00	0.0	0.0	0.000

■Specification of measuring input and range

Measuring input and range		Input impedance	Standard [Stnd]	Prescale [SCAL]
			Display range [Fixed]	Display range [Variable]
DC Volt	0−50V [50V]	434.35kΩ	0.00 to 50.00(Fixed)	−1999 to 9999(Variable) −199.9 to 999.9(Variable) −19.99 to 99.99(Variable) −1.999 to 9.999(Variable) (Display position will be changed depending on decimal point position.) ※Please connect proper terminal its max. input voltage is within 30 to 100% of input terminal. When it is higher than input voltage, it may cause a breakdown of terminal and over display range and the accuracy is decreased when it is connected to the terminal under 30%.
	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)	
	0−250mV [250mV]	2.15kΩ	0.0 to 250.0(Fixed)	
	0−50mV [50mV]	2.15kΩ	0.00 to 50.00(Fixed)	
DC Ampere	0−500mA [500mA]	0.1Ω	0.0 to 500.0(Fixed)	
	0−200mA [200mA]	0.1Ω	0.0 to 200.0(Fixed)	
	0−50mA [50mA]	1.1Ω	0.00 to 50.00(Fixed)	
	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)	
	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)	
	0−5V [5V]	22kΩ	0.000 to 5.000(Fixed)	
	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)	
	0−2.5A [2.5A]	0.01Ω	0.000 to 2.500(Fixed)	
	0−500mA [500mA]	0.1Ω	0.0 to 500.0(Fixed)	
	0−250mA [250mA]	0.1Ω	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)	

MT4N Series

▪Functions

◎AC frequency measurement function (PA1 : $disP$ mode)

It measures input signal frequency when it is an AC input using fixed decimal point[PA1:dot mode] and measuring range can be changed by setting and measuring range of decimal point position is as below. It is available to adjust upper gradient with[PA1:$Inb.H$ mode] and [PA1:$Inb.E$ mode]. In order to measure frequency normally, input signal, over 30% F.S of measuring range should be supplied. Please select the proper point of measuring terminal.

①Measuring 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

※Maximum measurable frequency range is up to 3000Hz. Accuracy can not be guaranteed at higher frequency.

②$Inb.H$: 0.100 to 9.999
  [Gradient adjustment of high value]
③$Inb.E$: 10^{-2}, 10^{-1}, 10^{-0}, 10^{1}
  [Index adjustment of $Inb.H$]

◎Zero adjustment function(Deviation correction function of low limit display value)

It sets preset display value as zero when min. input is entered into the measuring terminal, zero error can be adjusted with 3 ways as below.

When zero adjustment is finished normally by front key and hold terminal, zero will be displayed and the adjusted value is saved in automatically.

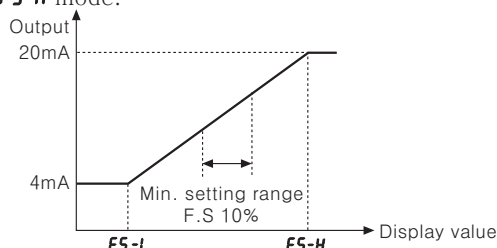| Operation	Input correction value	Front panel key	External input signal
Description	$PA1$:Direct input correction value method at $Inb.L$ mode.	≪, ⌃ keys are pressed for 3sec. at measuring mode.	Short−circuit External hold terminal no.11, 12 over min. 50m. ※It is enable to use in option mode.

※Refer to "◎**Error correction function**", "◎**Error display function**" and "▪**Parameter 2**" for function and error.

◎Current output(DC4−20mA) scale function (PA2 : $FS-H$ / $FS-L$ mode)

It outputs DC4−20mA within the setting range of $FS-H$ and $FS-L$ mode to transmit the current display value to the other. When it is over the setting value of $FS-H$ of **PA 2**, 20mA is outputted and 4mA for it is under the setting value of $FS-L$ mode. (The resolution is 12,000 division and it depends on full scale range.)

※The min. setting interval between $FS-H$ and $FS-L$ is 10% F.S, it is fixed as 10% of the setting value when it is small.

※In case, the display value is under $FS-L$, 4mA is outputted and 20mA for it is over the setting value of $FS-H$ mode.

◎Initialization function

It initializes as the factory default status. If press ≪, ⌄, ⌃ keys together for 2sec. in **RUN** mode, $InL.t$ mode and the setting value(no) is displayed every 0.5 sec. and it will be initialized as the factory default when press MODE key after change $no \rightarrow YES$.

◎Error display function

Display	Description
$HHHH$	Flashing when measuring input is exceeded the max. allowable input(110%)
$LLLL$	Flashing when measuring input is exceeded the minx. allowable input(−10%)
$d-HH$	Lights when display input is exceeded the max. display range(9999) or $H-SC$ setting value
$d-LL$	Lights when display input is exceeded the min. display range (−1999) or $L-SC$ setting value
$F-HH$	Flashes when measuring frequency is exceeded the max. measuring rvalue (9999)
$ouEr$	Flashes when it exceeds zero adjustment range($\pm$99)

※An error is cancelled automatically when it is in the measuring and display range.
※"$LLLL$" is displayed when the measuring input is 4−20mA.
※After flashing "$ouEr$" 2 times when it exceeds the zero range, it returns to RUN mode.

◎Prescale function(PA 1 : $H-SC$ / $L-SC$ 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 measuring input. If measuring inputs are a or b and particular values are A or B, it will display a=A, b=B as below graph.

◎Gradient correction function(PA1 : $Inb.H$ mode)

This function is to correct a gradient of prescale value and display value. (Fig.1)Display value Y can be used as α, β times against X input value by correction function[$Inb.H$]. And also can be used as correction function of max. display value($H-SC$). Adjustment range is 0.100 to 5.000 and multiply current gradient.

Ex)When 4.00VDC, display 5.000 for measuring input 0 to 10.00V

(Fig. 1)

(Setting the gradient correction value)
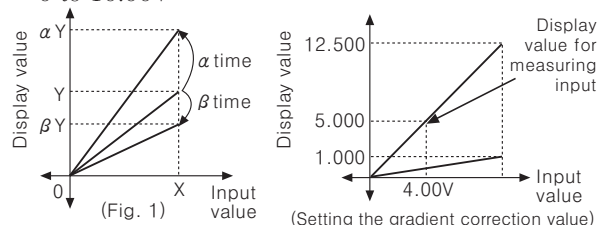
①Set the decimal position as '0.000' for prescale value.
②In order to display 5.000 when measuring input is 4.00VDC, 12.500 will be displayed when max. input value is 10.00V, but it cannot set the max. setting value.
③Set gradient correction setting value[$Inb.H$]×High scale value[$H-SC$]=12.500 as follows.
④It displays 5.000 when measuring input is 4.00V after set is finished.

Setting	$H-SC$	$L-SC$	$Inb.H$	Other
①	Disable	0.000	1.000	———
②	6.250	0.000	2.000	It will be the same display value.
③	3.125	0.000	4.000	
④	2.500	0.000	5.000	

◎Error correction function
(PA 1: $Inb.H$ / $Inb.L$ mode)

It corrects display value error of measured input.

$Inb.L$: ±99 (Adjust deviation of low value)
$Inb.H$: 5.000 to 0.100
[Correct gradient(%) of high value]

Display value = (Measured value × $Inb.H$) + $Inb.L$

Ex) Low value correction

When there is an application where there is a residual voltage of 1.2V, but a 0V display is desired, then it is possible by adjusting the INB.L parameter setting to 12(offset correcting value or equal to 1.2V without decimal) that the desired display value of 0 can be achieved.

Ex) High value correction

When there is an application where the high actual value of display is 501 and exceeds the 500V display range, then it is possible by adjusting the $Inb.H$ parameter setting to 0.998(calculated by desired value of 500/actual value of 501), that the desired value can be achieved.

※ The offset correction range of $Inb.L$ is within −99 to 99 for D^{-0}, D^{-1} digit regardless of decimal point.

◎Display cycle delay function
(PA 2 : $dIS.t$ 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 $dIS.t$ 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.

◎Monitoring peak display value function
(PA 0: $H.PEV$ / $L.PEV$ mode, PA 2: $PEV.t$ mode)

It monitors Max./Min. value of display value based on current display value and then display the data in $H.PEV$ mode and $L.PEV$ mode of parameter 0. Set delay time (0 to 30 sec.) in $PEV.t$ 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 $H.PEV$ and $L.PEV$ mode of parameter 0, it will be initialized.

※ Monitoring function is not indicated when setting the $PEV.t$ of parameter 2 as "0".

◎Preset output mode(PA 2 : $oU1t$ / $oU2t$ mode)

Mode	Output operation	Operation
oFF	OUT output — No output	No output
HI	OUT.H / OUT output — Hysterisis	Period ON : Display value ≥ OUT.H Period OFF : Display value ≤ OUT.H−Hys
Lo	OUT.L / OUT output — Hysterisis	Period ON : Display value ≤ OUT.L Period OFF : Display value ≥ OUT.L+Hys
HL	OUT.H / OUT.L / OUT output	Period ON : Display value ≤ OUT.L or Display value ≥ OUT.H Period OFF : Display value ≥ OUT.L+Hys or Display value ≤ OUT.H+Hys
HL-G	OUT.H / OUT.L / OUT output	Period ON : OUT.L ≤ Display value ≤ OUT.H+Hys Period OFF : Display value ≤ OUT.L+Hys or Display value ≥ OUT.H+Hys

※ Set output mode separately for each OUT1/OUT2.
※ OUT1/OUT2 are operated individually depending on output operation mode.
※ Setting value mode of parameter group 0 is displayed by output operation mode selection.
※ GO is outputted within the period both OUT1/OUT2 are off. (NPN/PNP Open collector output type.)

■Communication output

(Refer to L−33 to L−34.)

MT4Y/MT4W Series

DIN W72×H36mm, W96×48mm, digital multi panel meter

▣Features

- ●Various output options(Default : Indicator)
  RS485 Communication output, Low speed serial output,
  Current(4−20mA), BCD output, NPN/PNP open collector
  output, Relay output
- ●Max. measuring input specification
  : DC500V, AC500V, DC5A, AC5A
- ●Max. display range : −1999 to 9999
- ●High/Low scale function
- ●**AC frequency measurement function : 0.1 to 9999Hz**
- ●Various functions : Monitoring function for max. and
  min. display value function, display cycle delay function,
  Zero function, High display correction function,
  Current output scale function
- ●Wide range of power supply : 12−24VDC, 100−240VAC

⚠	Please read "Caution for your safety" in operation manual before using.

CE c **UL** us

▣Ordering information

MT	4	W	–	DV	–	4	N

			N	Indicator(No output function)
			0	Relay contact output
			1	NPN open collector output
		Y type	2	PNP open collector output
			3	Relay contact output+Transmission output(DC4−20mA)
			4	Relay contact output+RS485 communication output
			5	BCD dynamic output
			6	Low speed serial output
			※Output(0 to 6) : Option	
			N	Indication type(No output function)
			0	Relay contact output+Transmission output(DC4−20mA)
			1	Relay contact output
			2	NPN open collector output+BCD dynamic output
			3	PNP open collector output+BCD dynamic output
	Output	**W type**	4	NPN open collector output+Transmission output(DC4−20mA)
			5	PNP open collector output+Transmission output(DC4−20mA)
			6	NPN open collector output+Low speed serial output
			7	PNP open collector output+Low speed serial output
			8	NPN open collector output+RS485 output
			9	PNP open collector output+RS485 output
			※Output(0 to 9) : Option	
	Power supply		1	12−24VDC
			4	100−240VAC
			DV	DC voltage
	Input		DA	DC ampere
			AV	AC voltage
			AA	AC ampere
	Size		Y	DIN W72×H36mm
			W	DIN W96×H48mm
	Digit		4	9999(4 Digit)
	Item		MT	Multi Meter

※To measure the current over DC 5A, please select DV type because the shunt should be used.
※In case of selecting frequency display, no output will be provided even if it is output support models.
(Main output, Sub output and RS485 output)

Multi Panel Meter

(A)
Photo electric sensor

(B)
Fiber optic sensor

(C)
Door/Area sensor

(D)
Proximity sensor

(E)
Pressure sensor

(F)
Rotary encoder

(G)
Connector/ Socket

(H)
Temp. controller

(I)
SSR/ Power controller

(J)
Counter

(K)
Timer

(L)
Panel meter

(M)
Tacho/ Speed/ Pulse meter

(N)
Display unit

(O)
Sensor controller

(P)
Switching power supply

(Q)
Stepping motor & Driver & Controller

(R)
Graphic/ Logic panel

(S)
Field network device

(T)
Production stoppage models & replacement

■Specifications

Series	MT4Y-DV-4□ MT4Y-DA-4□	MT4Y-AV-4□ MT4Y-AA-4□	MT4W-DV-4□ MT4W-DA-4□	MT4W-AV-4□ MT4W-AA-4□	MT4W-DV-1□ MT4W-DA-1□	MT4W-AV-1□ MT4W-AA-1□
Measurement input	DC voltage, ampere	AC voltage, ampere, Frequency	DC voltage, ampere	AC voltage, ampere, Frequency	DC voltage, ampere	AC voltage, ampere, Frequency
Power supply	100−240VAC 50/60Hz (90 to 110% of rated voltage)				12−24VDC (90 to 110% of rated voltage)	
Power consumption	5VA				5W	
Display method	7Segment 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					
Max. allowable input	110% for input spec.					
A/D conversion method	Practical oversampling using successive approximation ADC					
Sampling cycle	DC type : 50ms, AC type : 16.6ms (Resolution 1/12000)					
Max. indication range	−1999 to 9999 (4 Digit)					
Max. input	110% for input specification					
Main output	Relay output	• Contact capacity : 250VAC 3A, 30VDC 3A • Contact composition : N.O(1a)				
	NPN open collector output	12−24VDC ±2V 50mA Max. (Resistive load)				
	PNP open collector output					
Sub output (Trans−mission output)	RS485 commu−nication output	• Baud rate : 1,200/2,400/4,800/9,600bps • Communication type : 2 wires half duplex • Protocol : RTU type • Tuning method : Sub−synchronization				
	Serial output	NPN open collector output, 12−24VDC Max. 50mA (Resistive load)				
	BCD output					
	DC4−20mA output	Resolution : 12,000 division (Load resistance max. 600Ω), Response time : Max. 450ms				
AC measuring function	(★1)	Selectable RMS or AVG				
Frequency measuring function	(★1)(★2) Measurement range : 0.100 to 9999Hz (Differ according to decimal point position)					
Hold function	(★3)	Including (Outer hold function)				
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 in each of X, Y, Z directions for 2hours				
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 10minutes				
Shock	Mechanical	100m/s² (10G) in X, Y, Z directions for 3 times				
	Malfunction	300m/s² (30G) in X, Y, Z directions for 3 times				
Relay life cycle	Malfunction	Min. 20,000,000 times				
	Mechanical	Min. 100,000 times (250VAC 3A Load current)				
Ambient temperature	−10 to 50℃ (at non−freezing status)					
Storage temperature	−20 to 60℃ (at non−freezing status)					
Ambient humidity	35 to 85%RH					
Insulation type	(★4)	▣				
Approval	CE cℛus				———	
Unit weight	Approx. 134g			Approx. 211g		

※ (★1) AC measuring function, and frequency measuring function are only for AC measuring input type.
※ (★2) Frequency measuring accuracy : 1kHz Max. ±0.1% F.S, 1kHz to 10kHz Max. ±0.3% F.S
※ (★3) MT4Y−□□−4N model has no hold function.
※ (★4) "▣" Mark indicated that equipment protected throughout by double insulation or reinforced insulation.

■Front panel identification

● MT4Y Series
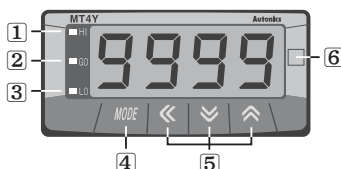
1 HI : High output indication of preset
2 GO : GO output indication of preset
3 LO : Low output indication of preset

● MT4W Series
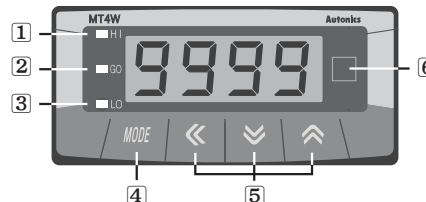
4 |MODE| key : Enter to parameter group, memorize the setting value, Move the parameter mode
5 |«| key : Move the digit, enter to parameter group
 |∨|, |∧| key : Change the setting value.
6 Unit sticker

※ There is no 1, 2, 3 on a display panel of MT4Y−□□−4N, 45, 46 and MT4W−□□−4N.
※ In MT4Y−□□−43, 44, OUT is used for Go output display and there is no 1, 3 in display panel.

MT4Y/MT4W Series

■Connections

◎Measuring input connection of MT4Y Series

●MT4Y-DV-4□

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

- 250mV/50mV
- 5V/1V
- 50V/10V
- 500V/100V
- SOURCE 100-240VAC 50/60Hz 5VA

●MT4Y-AV-4□

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

- 2V/1V
- 20V/10V
- 110V/50V
- 500V/250V
- SOURCE 100-240VAC 50/60Hz 5VA

●MT4Y-DA-4□

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

- 5mA/2mA
- 50mA/4-20mA
- 500mA/200mA
- 5A/2A
- SOURCE 100-240VAC 50/60Hz 5VA

●MT4Y-AA-4□

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

- AC100mA/50mA
- AC500mA/AC250mA
- AC1A
- AC5A/2.5A
- SOURCE 100-240VAC 50/60Hz 5VA

◎Output terminal of connection of MT4Y Series

●MT4Y-□□-4N (Indicator)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
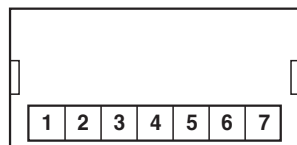
●MT4Y-□□-40
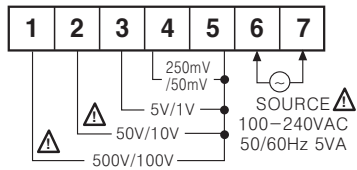(Triple relay contact output)

| 8 | 9 | 10 | 11 | 12 | 13 |

HI GO LO COM   Hold/Zero
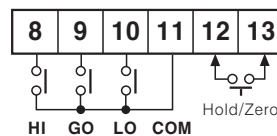
●MT4Y-□□-41
(Triple NPN O.C output)

| 8 | 9 | 10 | 11 | 12 | 13 |

HI GO LO COM   Hold/Zero
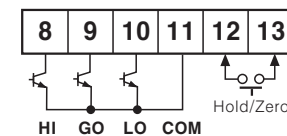
●MT4Y-□□-42
(Triple PNP O.C output)

| 8 | 9 | 10 | 11 | 12 | 13 |

HI GO LO COM   Hold/Zero
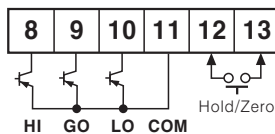
●MT4Y-□□-43
(Relay output+Transmission output)

| 8 | 9 | 10 | 11 | 12 | 13 |

+   −   OUT1   Hold/Zero
DC4-20mA
Load 600Ω max.
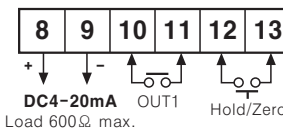
●MT4Y-□□-44
(Relay+RS485 communication output)

| 8 | 9 | 10 | 11 | 12 | 13 |

A1+1   B1-1   OUT1   Hold/Zero

●MT4Y-□□-45
(BCD Dynamic output)

HOLD/ZERO

| 2 | 4 | 6 | 8 | 10 | 12 | 14 |

A   C   D0   D2   DOT
COM B   D   D1   D3   POL

| 1 | 3 | 5 | 7 | 9 | 11 | 13 |
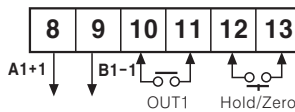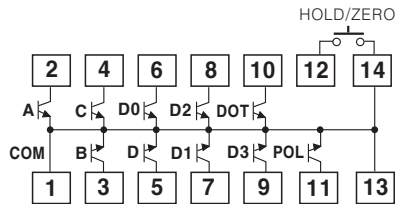
(Note)There is no signal output terminal about − sign.

PCB
② ④ ⑥ ⑧ ⑩ ⑫ ⑭
① ③ ⑤ ⑦ ⑨ ⑪ ⑬
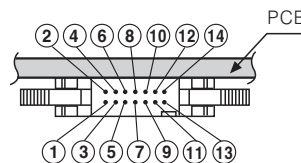
※Hirose connector pin header model of the unit : HIF3BA−14PA−2.54DS
※Contact Hirose Electric to purchase socket and wires of Hirose connector.
 [Socket : HIF3BA−14D−2.54R]

●MT4Y-□□-46 (Low speed serial output)

| 8 | 9 | 10 | 11 | 12 | 13 |

CLOCK DATA LATCH POL COM   Hold/Zero
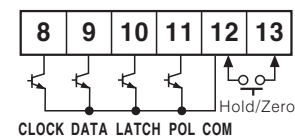
※POL : When a display value is "−", the signal of "−" will be outputted.

◎Measuring input connection of MT4W Series

●MT4W-DV-4□

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

- 250mV/50mV
- 5V/1V
- 50V/10V
- 500V/100V
- Hold/Zero
- SOURCE 12-24VDC 100-240VAC 50/60Hz 5VA

●MT4W-AV-4□

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

- 2V/1V
- 20V/10V
- 110V/50V
- 500V/250V
- Hold/Zero
- SOURCE 12-24VDC 100-240VAC 50/60Hz 5VA

●MT4W-DA-4□

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

- 5mA/2mA
- 50mA/4-20mA
- 500mA/200mA
- 5A/2A
- Hold/Zero
- SOURCE 12-24VDC 100-240VAC 50/60Hz 5VA

●MT4W-AA-4□

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

- 100mA/50mA
- 500mA/250mA
- 1A
- 5A/2.5A
- Hold/Zero
- SOURCE 12-24VDC 100-240VAC 50/60Hz 5VA
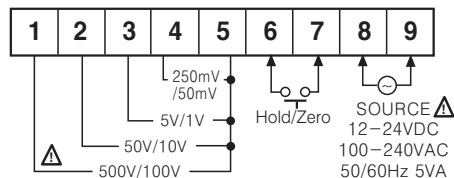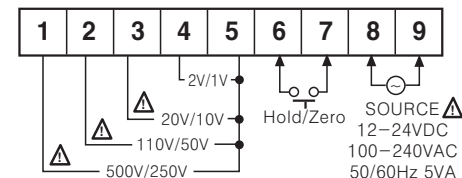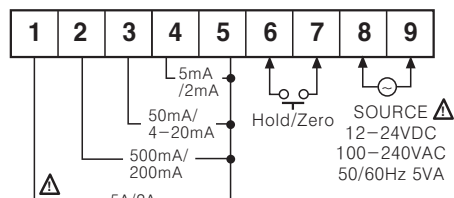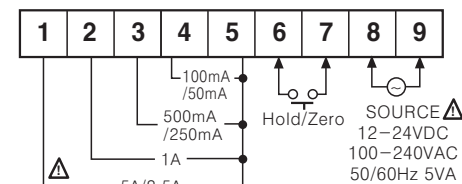
Multi Panel Meter

◎ Output terminal connection of MT4W Series

● **MT4W-□□-41** (Triple relay contact output)

← PCB
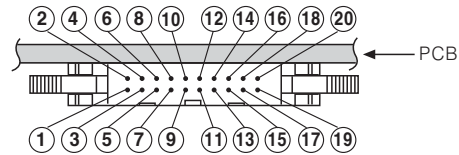
MAIN OUT :
NPN OPEN C

※POL : When a display value is "−", the signal
        of "−" will be outputted.

MAIN OUT :
NPN OPEN COLLECTOR
12−24VDC Max. 50mA

GO
+24VDC
30mA Max.
(−)
COM1 HI LO
0V
(+)

Current:
DC4−20mA LOAD 600Ω Max.

MAIN OUT :
PNP OPEN COLLECTOR
12−24VDC Max. 50mA
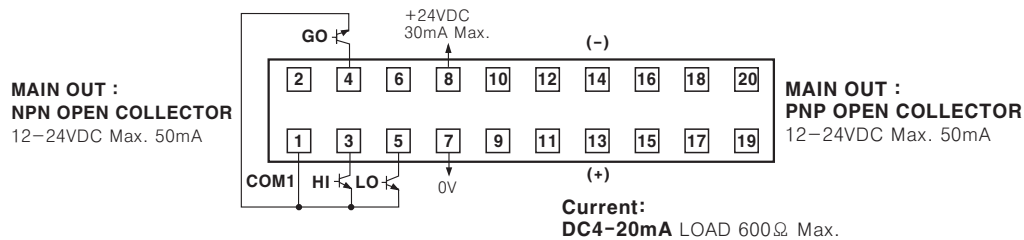
MAIN OUT :
NPN OPEN COLLECTOR
12−24VDC Max. 50mA

MAIN OUT :
PNP OPEN COLLECTOR
12−24VDC Max. 50mA

SERIAL OUT :
NPN OPEN COLLECTOR
12−24VDC Max. 50mA

RS485
B(−)

MAIN OUT :
NPN OPEN COLLECTOR
12−24VDC Max. 50mA

MAIN OUT :
PNP OPEN COLLECTOR
12−24VDC Max. 50mA

MT4Y/MT4W Series

▣ Dimensions

(Unit:mm)

● MT4Y-□□-4N, 45, 46

85
72
36

6 77
30

〈MT4Y-□□-4N, 40~44, 46〉

● Panel cut-out

Min. 91
Min. 40
$31.5^{+0.5}_{0}$
$68^{+0.7}_{0}$

● MT4Y-□□-43, 44

● MT4Y-□□-40, 41, 42

6 77
30

10 Pin Hirose connector
(HIF3BD-10PA-2.54DS)

〈MT4Y-□□-45〉

● MT4W-□□-4N (Indicator)

109
96
48

106
6 89.5 10.5
44.8
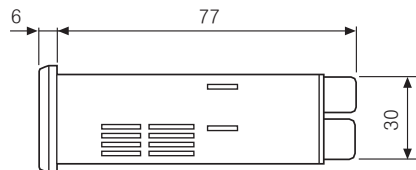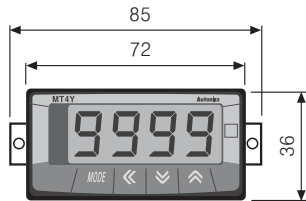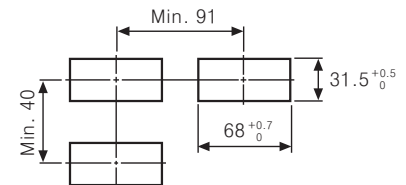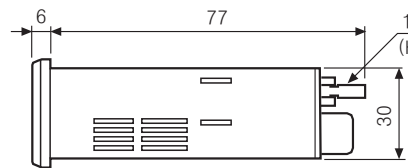
Relay contact
output terminal
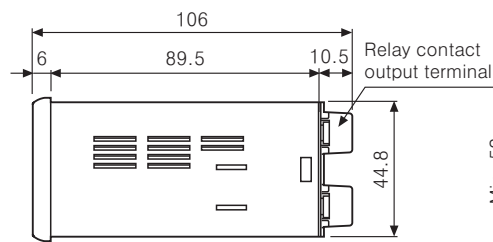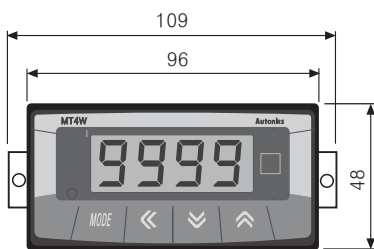
※ There is no Relay contact output terminal
block in indication type.

〈 MT4W-□□-4N, MT4W-□□-40, 41 〉

● Panel cut-out

Min. 116
Min. 52
$45^{+0.6}_{0}$
$92^{+0.8}_{0}$

● MT4W-□□-40 to 49

110.4
6 89.5 14.9
45

20 Pin Hirose connector
(HIF3BA-20PA-2.54DS)
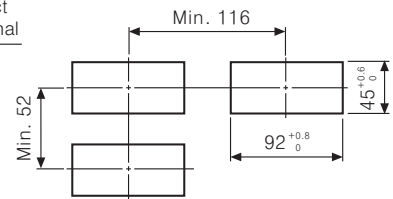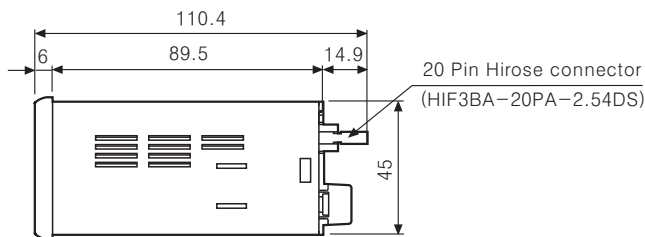
〈 MT4W-□□-42 to 49 〉

▣ Parameter setting

RUN

Press MODE Key   Press MODE Key for 2sec.

PA 0   PA 1

Press MODE Key   Press MODE Key
                        for 2sec.

PA 2
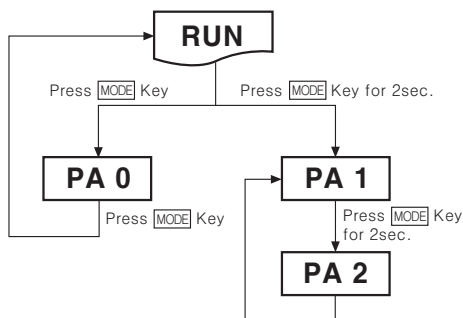
※ If MODE key is pressed, it will advance to **PA-0** group.
  It can be entered only when setting monitoring time of **Pek.t** mode in **PA-2** group or **Out.t** mode is not **oFF**.
※ If MODE key is pressed for 2 sec., **PA-1** is displayed.
※ If MODE key is pressed for 4 sec., **PA-2** is displayed after **PA-1**.
※ When releasing MODE key at displaying **PA-1** or **PA-2**, then it will enter into Parameter.
※ If MODE key is touched for 3 sec. after advance to parameter, it will return to **RUN** mode.

Autonics

Multi Panel Meter

▣Parameter group 1

RUN

Press MODE key for 2sec.

PA1

Move after 1sec.

1 n-r ≪ | Display of factory default for measuring input

Select measuring input specification by ⌃ ⌄ .
☞ Refer to "Measuring input chart by model"

MODE
MODE

d1SP ≪ **Stnd**

Select the display method of measuring input.

Select **Stnd** ⇄ **SCAL** ⇄ **FrE9**

☞ Refer to measuring input specification and range chart.
(**FrE9** mode is only for AC measuring type.)

MODE
MODE

1 n-t → **AvG**

Select measuring method for AC.

Select **AvG** ⇄ **rñS** (Average:AVG/Root mean square:RMS)

(This parameter will be displayed only for AC measuring models. In case of selecting frequency display, it will not be displayed.)

MODE
MODE

●Measuring input chart by model

Item	Range of measuring input
MT4Y/W−DV	500u ⇄ 100u ⇄ 50u ⇄ 10u ⇄ 5u ⇄ 1u ⇄ 0.25u ⇄ 50ñu ⇄ 500u
MT4Y/W−DA	5A ⇄ 2A ⇄ 0.5A ⇄ 0.2A ⇄ 50ñA ⇄ 20ñA ⇄ 5ñA ⇄ 2ñA ⇄ 5A
MT4Y/W−AV	500u ⇄ 220u ⇄ 1 10P(☆) ⇄ 50u ⇄ 20u ⇄ 10u ⇄ 2u ⇄ 1u ⇄ 500u
MT4Y/W−AA	5A ⇄ 2.5A ⇄ 1A ⇄ 0.5A ⇄ 0.25A ⇄ 0.1A ⇄ 50ñA ⇄ 5A

※(☆) Standard specification. (110P is 440VAC/110VAC P.T)

When d1SP is Stnd

Stnd ≪ | Max. display value

MODE
MODE

It shows Max. display value of standard specification.
Display value is fixed.

When d1SP is SCAL

dot ≪ | Decimal point position

Select decimal point position.
0 ⇄ 0.0 ⇄ 0.00 ⇄ 0.000

MODE
MODE

H-SC ≪ | Max. display value

Set display value against max. measuring input.
(≪ : Shift the digit
⌃, ⌄ : Change setting value)

MODE
MODE

L-SC ≪ | Min. display value

Set display value against min. measuring input.
(≪ : Shift the digit
⌃, ⌄ : Change setting value)

MODE
MODE

d1SP : FrE9
(It is only displayed for AC measuring type.)

dot ≪ | Decimal point position

Set frequency measuring range, it is decided as the decimal point position.
(⌃ ⌄ : Change the decimal point position)

MODE
MODE

0	1~9999Hz
0.0	0.1~999.9Hz
0.00	0.10~99.99Hz
0.000	0.100~9.999Hz

※In case of selecting frequency display, no output will be provided even if it is output support models (Main output, Sub output and RS485 output).

1 nb.H ≪ **1.000**

It corrects a gradient of High−limit display value against max. input. The setting range is 0.100 to 5.000(%).
(⌃, ⌄ :Change setting value, ≪ :Shift the digit)

MODE
MODE

1 nb.L ≪ **00**

It corrects deviation of Low−limit display value against Min. input. Setting range is −99 to 99.
(Refer to zero point function)
(⌃, ⌄ :Set a deviation value, ≪ :Shift the digit)

MODE
MODE

1 nb.H ≪ **1.000**

It corrects a gradient of display value against max. input.
Setting range:0.001 to 9.999
(⌃, ⌄ :Change setting value, ≪ :Shift the digit)

MODE
MODE

1 nb.E ≪ **10-0**

Set **1 nb.H**.
Setting range:10^{-2} to 10^{1}
(≪ : Shift the digit
⌃, ⌄ : Change setting value)

MODE
MODE

※After setting each mode, press MODE key for 2 sec. to return to RUN.
※If any key is untouched for 60sec. after advance to Parameter, it will return to RUN.

◎Factory defaults

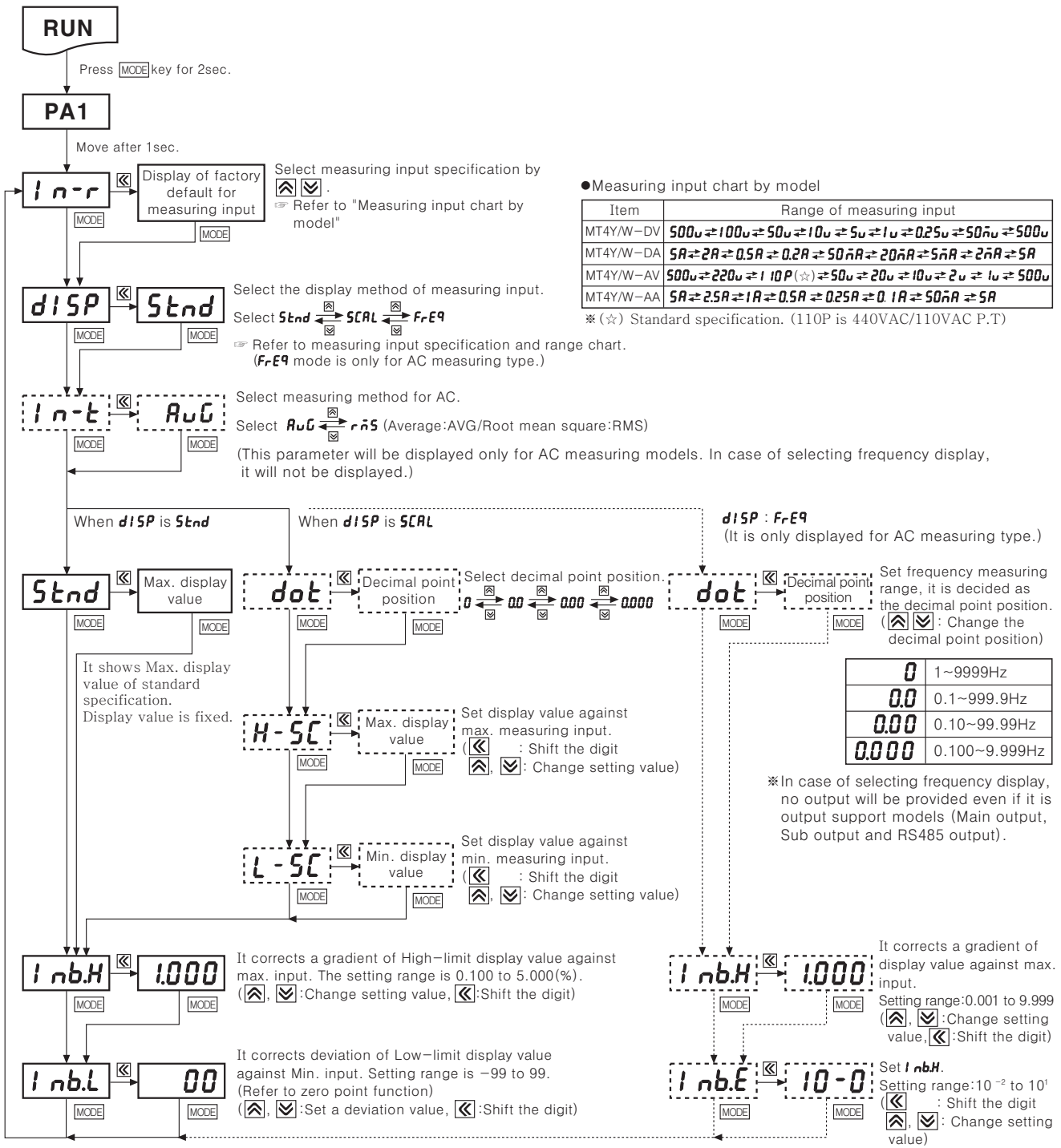| Mode	MT4Y/W−DV	MT4Y/W−DA	MT4Y/W−AV	MT4Y/W−AA	Mode	MT4Y/W−DV	MT4Y/W−DA	MT4Y/W−AV	MT4Y/W−AA
1 n-r	500u	5A	500u	5A	1 nb.H	1.000	1.000	1.000	1.000
d1SP	Stnd	Stnd	Stnd	Stnd	1 nb.L	00	00	00	00
1 n-t	──	──	AvG	AvG	dot	0.0	0.000	0.0	0.000
Stnd	500.0	5.000	500.0	5.000	1 nb.E	──	──	10-0	10-0

(A) Photo electric sensor
(B) Fiber optic sensor
(C) Door/Area sensor
(D) Proximity sensor
(E) Pressure sensor
(F) Rotary encoder
(G) Connector/ Socket
(H) Temp. controller
(I) SSR/ Power controller
(J) Counter
(K) Timer
(L) Panel meter
(M) Tacho/ Speed/ Pulse meter
(N) Display unit
(O) Sensor controller
(P) Switching power supply
(Q) Stepping motor & Driver & Controller
(R) Graphic/ Logic panel
(S) Field network device
(T) Production stoppage models & replacement

MT4Y/MT4W Series

▣Parameter group 2

RUN

Press MODE key for 4sec.

PA 2

Move after 1sec.

oUt.t ⟶ **oFF**

Select output operation mode of preset output. (It displays when it is preset output type only.)

oFF ⇌ L.St ⇌ H.St ⇌ LH.St ⇌ HH.St ⇌ LL.St ⇌ Ld.St

In MT4Y−□□−43,44, "**oFF**, **L.St**" are only displayed.

HYS ⟶ **001**

Set a hysteresis of preset. (⟪≪⟫:Shift the digit, ⟪∧⟫ ⟪∨⟫ : Change setting value)
The range is within 10% of max. display range (Unit : digit) If resolution is higher than 10,000, it is fixed to 9999.
※**out.t** mode is **oFF**, it is not displayed.

PEt.t ⟶ **00 S**

Set a monitoring delay time for displayed peak value.
(⟪≪⟫:Shift the digit, ⟪∧⟫ ⟪∨⟫ : Change setting value)
Setting range : 00 to 30sec.

diS.t ⟶ **0.2 S**

Set a display cycle. (⟪≪⟫:Shift the digit, ⟪∧⟫ ⟪∨⟫ : Change setting value)
Setting range : 0.1 to 5.0sec.

ΞEro ⟶ **no**

Select zero function with operation at front. (Set with ⟪∧⟫, ⟪∨⟫ key)
When ⟪≪⟫ + ⟪∧⟫ key are pressed for 3 sec. to set **YES**, it will be zero function and the deviation
value is saved automatically at **I nb.L** mode.

EuI n ⟶ **HoLd**

Select input with 6, 7(MT4W)[12, 13(MT4Y)] terminal or zero function for external signal.
(Set with ⟪∧⟫, ⟪∨⟫ key)
HoLd : Holding display value, **ΞEro** : Zero function using Hold/Zero terminal

FS-H ⟶ **500.0**

Set the high limit value, output point of current output 20mA.
(⟪≪⟫:Shift the digit, ⟪∧⟫ ⟪∨⟫ : Change setting value)
(When changing measuring input and prescale mode, it is changed automatically
as maximum value of input range.)

FS-L ⟶ **000.0**

Set the low limit value, output point of current output 4mA.
(⟪≪⟫:Shift the digit, ⟪∧⟫ ⟪∨⟫ : Change setting value)
(When changing measuring input and prescale mode, it is changed automatically
as minimum value of input range.)

AdrS ⟶ **01**

Set the address of RS485 communication output.
(⟪≪⟫:Shift the digit, ⟪∧⟫ ⟪∨⟫ : Change setting value)
Setting range : **01** to **99**

bPS ⟶ **9600**

Select Baud rate of RS485 communication output.
Setting range : **9600** ⇌ **4800** ⇌ **2400** ⇌ **1200**

LoC ⟶ **oFF**

Set key lock function and select from 4 types.
oFF ⇌ LoC1 ⇌ LoC2 ⇌ LoC3

oFF	Disable to lock keys
LoC1	Lock Parameter 1
LoC2	Lock Parameter 1, 2
LoC3	Lock Parameter 0, 1 and 2

※The dotted mode is only displayed for output type.
※After setting each mode, press MODE key for 2 sec. to return to **RUN** mode.
※If any key is untouched for 60sec. after advance to PARAMETER, it will return to **RUN** mode.

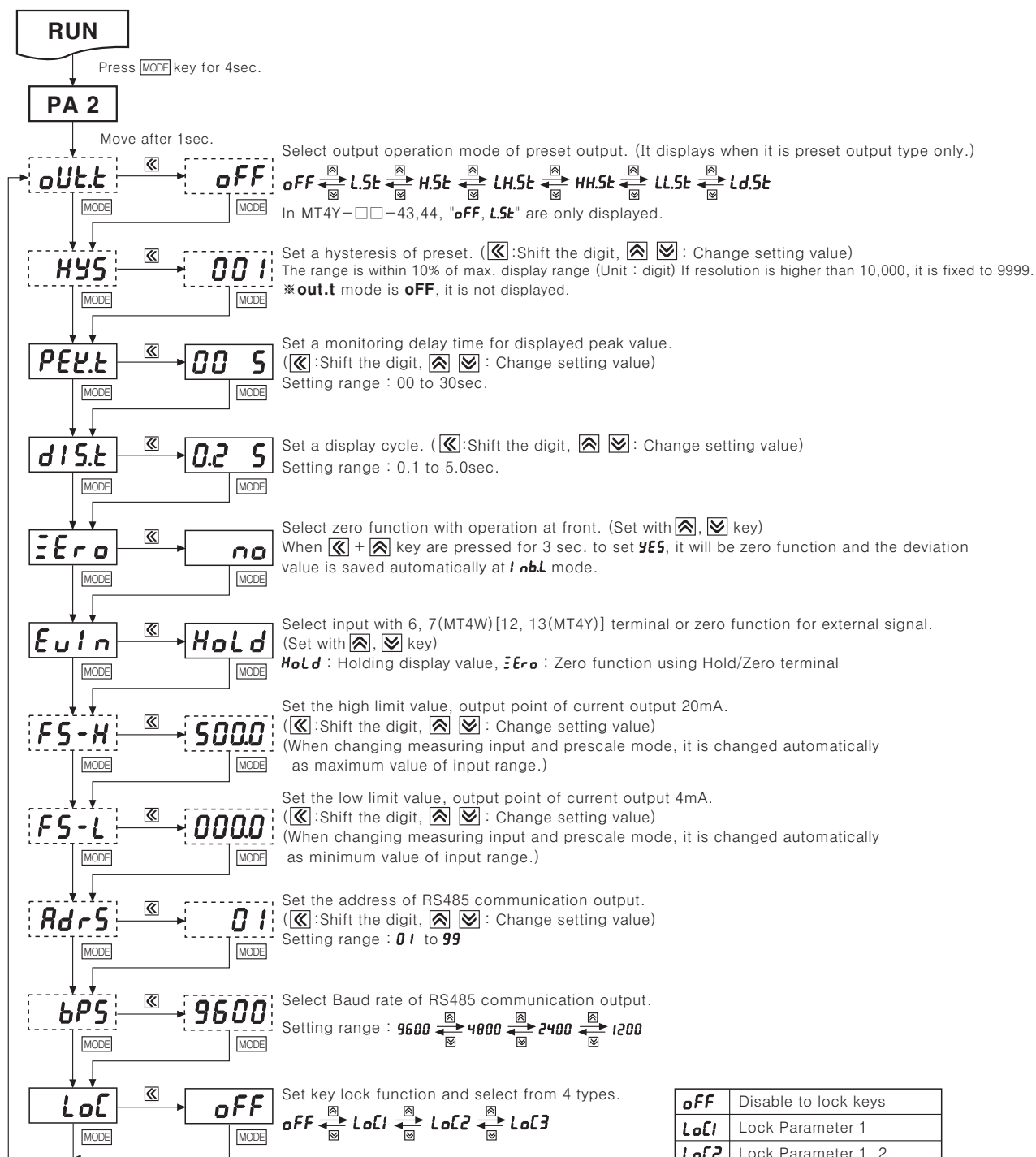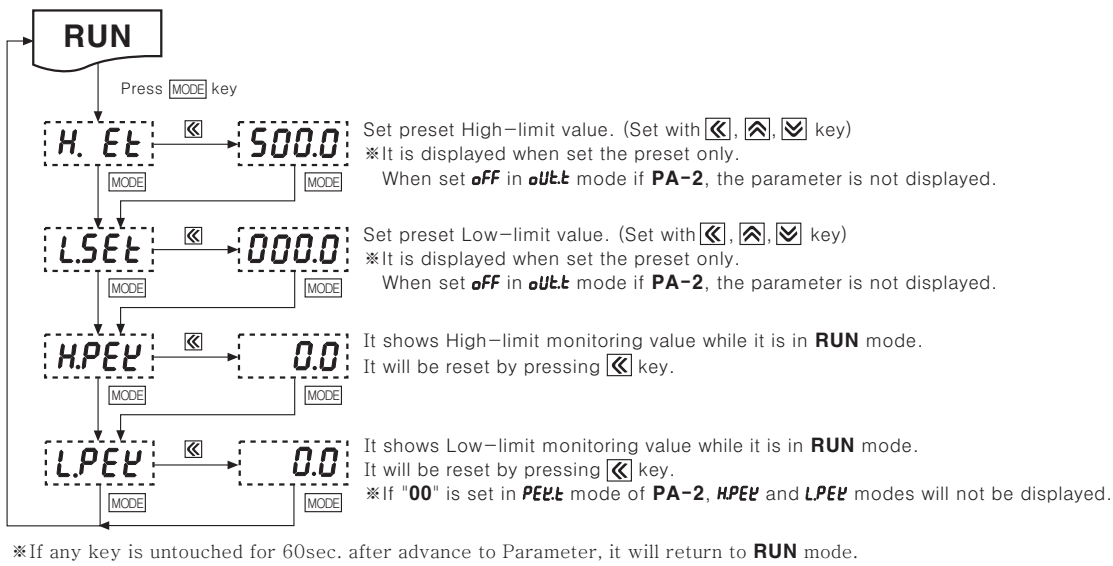## ◎Factory defaults

Mode	MT4Y/W−DV	MT4Y/W−DA	MT4Y/W−AV	MT4Y/W−AA	Mode	MT4Y/W−DV	MT4Y/W−DA	MT4Y/W−AV	MT4Y/W−AA
oUt.t	oFF	oFF	oFF	oFF	FS-H	500.0	5.000	500.0	5.000
HYS	001	001	001	001	FS-L	000.0	0.000	000.0	0.000
PEt.t	00 S	00 S	00 S	00 S	AdrS	01	01	01	01
diS.t	0.2 S	0.2 S	0.2 S	0.2 S	bPS	9600	9600	9600	9600
ΞEro	no	no	no	no	LoC	oFF	oFF	oFF	oFF
EuI n	HoLd	HoLd	HoLd	HoLd					

Autonics

▣Parameter group 0


```
RUN
```

Press MODE key

H. Et → **500.0** Set preset High−limit value. (Set with ◀, ⊼, ⊻ key)
※It is displayed when set the preset only.
When set **off** in **oUt.t** mode if **PA-2**, the parameter is not displayed.

L.SEt → **000.0** Set preset Low−limit value. (Set with ◀, ⊼, ⊻ key)
※It is displayed when set the preset only.
When set **off** in **oUt.t** mode if **PA-2**, the parameter is not displayed.

H.PEʊ → **0.0** It shows High−limit monitoring value while it is in **RUN** mode.
It will be reset by pressing ◀ key.

L.PEʊ → **0.0** It shows Low−limit monitoring value while it is in **RUN** mode.
It will be reset by pressing ◀ key.
※If "**00**" is set in **PEʊ.t** mode of **PA-2**, **H.PEʊ** and **L.PEʊ** modes will not be displayed.

※If any key is untouched for 60sec. after advance to Parameter, it will return to **RUN** mode.

◎Factory defaults

Mode	MT4Y/W−DV	MT4Y/W−DA	MT4Y/W−AV	MT4Y/W−AA	Mode	MT4Y/W−DV	MT4Y/W−DA	MT4Y/W−AV	MT4Y/W−AA
H.SEt	500.0	5.000	500.0	5.000	H.PEʊ	0.0	0.000	0.0	0.000
L.SEt	000.0	0.000	000.0	0.000	L.PEʊ	0.0	0.000	0.0	0.000

▣Measuring input and range

Type	Measuring input and range		Input impedance	Standard specification [Stnd]	Prescale specification [SCAL]
				Display range[Fixed]	Display range[Variable]
DC Volt	0−500V	[500ʊ]	4.33MΩ	0.0 to 500.0	−1999 to 9999 −199.9 to 999.9 −19.99 to 99.99 −1.999 to 9.999 (The display range is changed according to the decimal point position.) ※Please connect proper terminal its max. input voltage is within 30 to 100% of input terminal. When it is higher than input voltage, it may cause a breakdown of terminal and over display range and the accuracy is decreased when it is connected to the terminal under 30%.
	0−100V	[100ʊ]	4.33MΩ	0.0 to 100.0	
	0−50V	[50ʊ]	433.15kΩ	0.00 to 50.00	
	0−10V	[10ʊ]	433.15kΩ	0.00 to 10.00	
	0−5V	[5ʊ]	43.15kΩ	0.000 to 5.000	
	0−1V	[1ʊ]	43.15kΩ	0.000 to 1.000	
	0−250mV	[0.25ʊ]	2.15kΩ	0.0 to 250.0	
	0−50mV	[50mʊ]	2.15kΩ	0.00 to 50.00	
DC Ampere	0−5A	[5A]	0.01Ω	0.000 to 5.000	
	0−2A	[2A]	0.01Ω	0.000 to 2.000	
	0−500mA	[0.5A]	0.1Ω	0.0 to 500.0	
	0−200mA	[0.2A]	0.1Ω	0.0 to 200.0	
	0−50mA	[50mA]	1.0Ω	0.00 to 50.00	
	4−20mA	[20mA]	1.0Ω	4.00 to 20.00	
	0−5mA	[5mA]	10.0Ω	0.000 to 5.000	
	0−2mA	[2mA]	10.0Ω	0.000 to 2.000	
AC Volt	0−500V	[500ʊ]	4.98MΩ	0.0 to 500.0	
	0−250V	[250ʊ]	4.98MΩ	0.0 to 250.0	
	0−110V	[110P]	1.08MΩ	0.0 to 440.0	
	0−50V	[50ʊ]	1.08MΩ	0.00 to 50.00	
	0−20V	[20ʊ]	200kΩ	0.00 to 20.00	
	0−10V	[10ʊ]	200kΩ	0.00 to 10.00	
	0−2V	[2ʊ]	20kΩ	0.000 to 2.000	
	0−1V	[1ʊ]	20kΩ	0.000 to 1.000	
AC Ampere	0−5A	[5A]	0.01Ω	0.000 to 5.000	
	0−2.5A	[2.5A]	0.01Ω	0.000 to 2.500	
	0−1A	[1A]	0.05Ω	0.000 to 1.000	
	0−500mA	[0.5A]	0.1Ω	0.0 to 500.0	
	0−250mA	[0.25A]	0.1Ω	0.0 to 250.0	
	0−100mA	[0.1A]	0.5Ω	0.0 to 100.0	
	0−50mA	[50mA]	0.5Ω	0.00 to 50.00	

▣Functions

◎AC frequency measurement function (PA1 : dISP mode)

It measures input signal frequency when it is an AC input using fixed decimal point[PA1:dot mode] and measuring range can be changed by setting and measuring range of decimal point position is as below. It is available to adjust upper gradient with[PA1:I nb.H mode] and [PA1:Inb.E mode]. In order to measure frequency normally, input signal, over 30% F.S of measuring range should be supplied. Please select the proper point of measuring terminal.

①Measuring 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

※0.100 to 5000Hz
 : Display accuracy error within ±0.3%F.S.±2Digit
※5000 to 9999Hz
 : Display accuracy error within ±1%F.S.±3Digit
② I nb.H : 0.100 to 9.999
        [Gradient adjustment of high value]
③ Inb.E : 10^{-2}, 10^{-1}, 10^{-0}, 10^{1} [Index adjustment of I nb.H]

◎Zero adjustment function(Deviation correction function of low limit display value)

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 measuring terminal is displayed and the adjusted value is saved in I nb.L automatically.

Operation	Input correction value	Front panel key	External input signal
Description	PA 1 :Direct input correction value method at I nb.L mode.	Press both ≪, ⋀ keys for 3 sec. at the measuring mode.	Short−circuit external Hold terminal no.11, 12 [no. 6, 7(MT4W)] over min. 50m. ※It is enable to use in option mode.

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

◎Current output(DC4−20mA) scale function (PA2 : FS-H / FS-L mode)

It outputs DC4−20mA within the setting range of FS-H and FS-L mode to transmit the of display value to the other. When it is over the setting value of FS-H of **PA 2**, 20mA is outputted and 4mA for it is under the setting value of FS-L mode. (The resolution is divided as 12000 and it depends on full scale range.)
※The min. setting interval between FS-H and FS-L is 10% F.S, it is fixed as 10% of the setting value when it is small.
※In case, the display value is under FS-L, 4mA is outputted and 20mA for it is over the setting value of FS-H mode.

◎Initialization function

It initializes as the factory default status. If press ≪, ⋁, ⋀ keys together for 2sec. in **RUN** mode, I nLt mode and the setting value(no) is displayed every 0.5 sec. and it will be initialized as the factory default when press MODE key after change no → YES.

◎Error display function

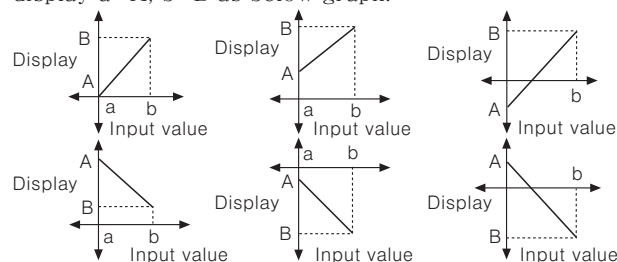| Display	Description
HHHH	Flashing when measuring input is exceeded the max. allowable input(110%)
LLLL	Flashing when measuring input is exceeded the minx. allowable input(−10%)
d-HH	Lights when display input is exceeded the max. display range(9999) or H-SC setting value
d-LL	Lights when display input is exceeded the min. display range (−1999) or L-SC setting value
F-HH	Flashes when measuring frequency is exceeded the max. measuring rvalue (9999)
ouEr	Flashes when it exceeds zero adjustment range(±99)

※An error is cancelled automatically when it is in the measuring and display range.
※"LLLL" is displayed when the measuring input is 4−20mA.
※After flashing "ouEr" 2 times when it exceeds the zero range, it returns to RUN mode.

◎Prescale function(PA 1 : 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 measuring input. If measuring inputs are a or b and particular values are A or B, it will display a=A, b=B as below graph.

◎Gradient correction function(PA1:I nb.H mode)

This function is to correct a gradient of prescale value and display value. (Fig.1)Display value Y can be used as α, β times against X input value by correction function[I nb.H]. And also can be used as correction function of max. display value(H-SC). Adjustment range is 0.100 to 5.000 and multiply current gradient.
Ex)Input : DC200mV, Display : 3.000 for MT4W−DV

(Fig. 1)

(Setting the gradient correction value)
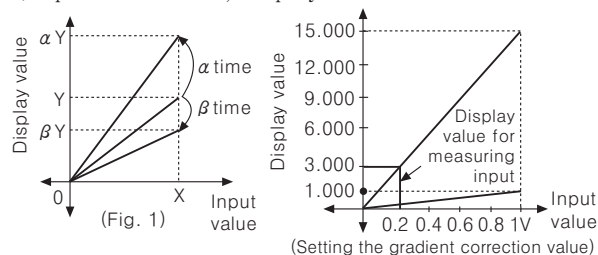
①Select 0−1VDC for measuring input in Parameter1.
②Standard specification in input : 0−1VDC and 1.000 therefore it has to be 15.000(H-SC) for 1VDC(input) in order to display 3.000 for DC200mV(input).
 But it is disable due to setting range is 9.999
③In this case, please check below chart.
 Please set as I nb.H×H-SC =15.000

Setting	H-SC	L-SC	I nb.H	Other
①	Disable	0.000	1.000	————
②	7.500	0.000	2.000	It will be 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	

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◎Error correction function(PA 1: I nb.H / I nb.L mode)

It corrects display value error of measured input.

I nb.L : ±99 (Adjust deviation of low value)
I nb.H : 5.000 to 0.100 [Correct gradient(%) of high value]
Display value＝(Measured value × I nb.H)＋I nb.L

Ex)Low value correction

When there is an application where there is a residual voltage of 1.2V, but a 0V display is desired, then it is possible by adjusting the INB.L parameter setting to 12(offset correcting value or equal to 1.2V without decimal) that the desired display value of 0 can be achieved.

Ex)High value correction

When there is an application where the high actual value of display is 501 and exceeds the 500V display range, then it is possible by adjusting the I nb.H parameter setting to 0.998(calculated by desired value of 500/actual value of 501), that the desired value can be achieved.

※The offset correction range of I nb.L is within −99 to 99 for D⁻⁰, D⁻¹ digit regardless of decimal point.

◎Display cycle delay function(PA 2:d I 5.t mode)

n 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 d I 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.

◎Monitoring peak display value function
(PA 0: H.PEU / L.PEU mode, PA 2: PEU.t 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 PEU.t 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 PEU.t of parameter 2 as "0".

◎Preset output Mode[PA 2 : oUt.t mode]

Mode	Output operation		Operation
	HSEt LSEt	H:Hysteresis	H:Hysteresis
oFF			No output
L.St	GO LO		If it is equal or smaller than low setting value, LO output will be ON. If it is bigger than low setting value, GO output will be ON.
H.St	HI GO		If it is equal or bigger than high setting value, HI output will be ON. If it is equal or smaller than high setting value, GO output will be ON.
LH.St	HI GO LO		If it is equal or smaller than low setting value and equal or bigger than high setting value, the output will be ON. If it is bigger than Low setting value and smaller than high setting value, GO output will be ON.
HH.St	HI GO LO		If it is equal or bigger than low set and equal or bigger than high set value, output will be ON. If it is smaller than low setting value and high setting value, GO output will be ON.
LL.St	HI GO LO		If it is equal or smaller than low setting value, LO output will be ON. If it is equal or smaller than high setting value, HI output will be ON. If it is bigger than low setting value and High setting value, GO output will be ON.
Ld.St	GO LO		This operation is the same as L.St. But it doesn't operate at initial low set value, it will operate at next low set value. If this is higher than low set value, Go output wil be ON.

※"H" means hysteresis and able to set 1 to 99 at "HYS" mode in para−meter 2 among above comparison output chart.
※In MT4Y−□□−43, 44, L5t modes are only available to use.

◎Sub output(Transmission function)

● RS485 communication output
It is able to set address(01 to 99)
It is able to transmit by selecting modulation speed (Transmitted number of signal per 1sec.) of serial trans−mission. (Selectable 1200, 2400, 4800, 9600bps)
● Low−speed serial output
It outputs current display value as Low−frequency(50Hz) type.
● Current output(DC4−20mA)
It outputs DC4−20mA against High/Low−limit scale. (Resolution: 12000 division)
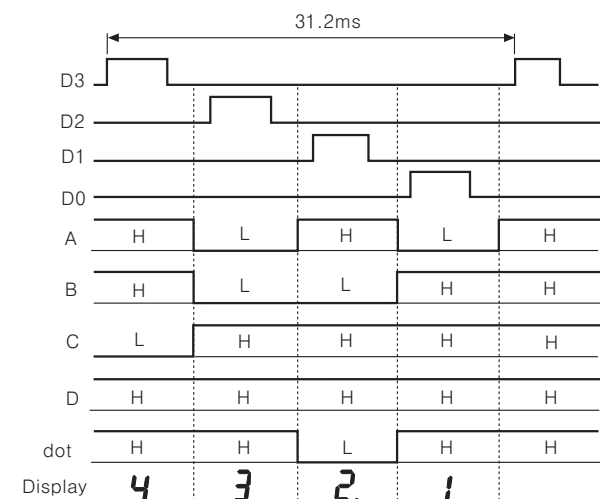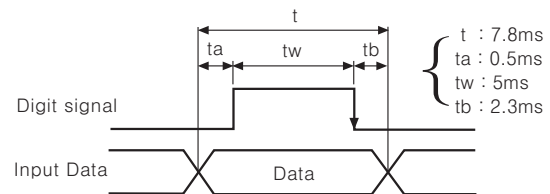● BCD output
It outputs display value as BCD Code.
※**Only one sub-output is selectable.**
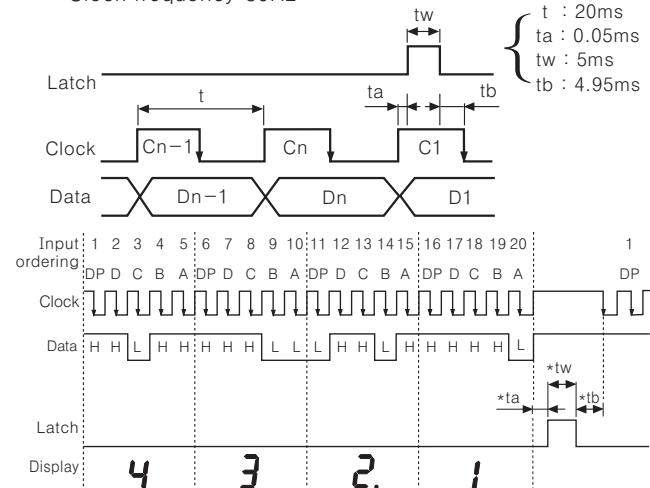**(More than one sub-output is not allowed.)**

◎Time chart of BCD output and Low speed serial output

● BCD output(Negative logic)

● Low speed serial output(Negative logic)
−Clock frequency:50Hz

*When clock pulse changed from High to Low, Data will be read.

MT4 Series

▣Communication output

The protocol is changed as Modbus type.

◎Interface

Standard	EIA RS485
Number of connections	Max. 31 units.(It is available to set address 01 to 99.)
Communication method	2 wire half duplex
Synchronous method	Asynchronous type
Communication distance	Within max. 800m
Communication speed	1200, 2400, 4800, 9600bps
Start bit	1bit(Fixed)
Stop bit	1bit(Fixed)
Parity bit	none
Data bit	8bit(Fixed)
Protocol	Modbus RTU

◎Application of system organization
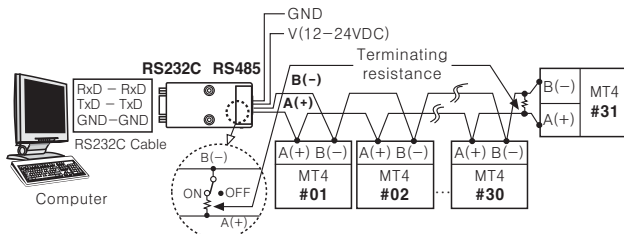
※It is recommended to use communication converter, RS232C to RS485(SCM-38I, sold separately), USB to RS485 converter(SCM-US48I, sold separately).

※Please use a proper twist pair for RS485 communication.

◎Communication control ordering

1. The communication ordering of MT4 series is Modbus RTU. (PI-MBUS-300-REV.J)
2. After 0.5sec. being supplied the power into the master system, it starts to communicate.
3. Initial communication will be started by the master system. When a command comes out from the master system, MT4 series will respond.
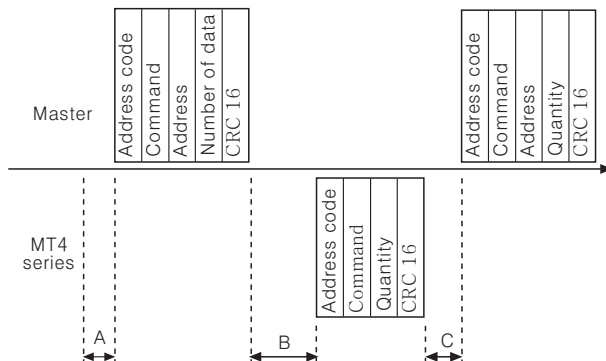
※A → Min. 0.5sec. after applying power

B →
- 9600bps : Within 10.4ms
- 4800bps : Within 20.8ms
- 2400bps : Within 41.6ms
- 1200bps : Within 83.3ms

C →
- 9600bps : Within 4.2ms
- 4800bps : Within 8.4ms
- 2400bps : Within 16.7ms
- 1200bps : Within 33.4ms

◎Communication command and block

The format of query and response

●Query

Address code	Command	Start address	Number of data	CRC16
①	②	③	④	⑤

Calculation range of CRC16 (①-④)

①Address code : This code is the master system can discern MT4 series and able to set within range 01H-63H.
②Command : Read command for input register.
③Start address : The start address of input register to read (Start address), it is available to select 0000 to 0003 for start address.
④Number of data : The number of 16 bit data from start address(No. of points)
⑤CRC16 : It is a Check Sum checking the whole frame and it is for more reliable transmit/receive to check the error between transmitter and receiver.

●Response

Address code	Response Command	Number of data	PV	Decimal point position	Hi peak value	Low peak value	CRC16
①	②	③	④	⑤	⑥	⑦	⑧

Calculation range of CRC16 (①-⑦)

①Address code : Distinguish MT4 series and the number is available from 01H-63H.
②Response command :
Response for a read command of input register.
(Refer to Modbus mapping table)
③Amount of data : The number of 8 bit data on star code. (No. of points)
④PV : It is 16 Bit data, measuring and display value of MT4 series. The decimal point data is not included in the transmitting PV.
⑤Decimal point position : It is the decimal point position is set in **dot** mode of Parameter 1.
⑥Hi peak value : The max. display value of PV
⑦Lo peak value : The min. display value of PV
⑧CRC16 : It is a Check Sum checking the whole block.

◎Application of communication command

In case, the display value of multi panel meter is 220.3V, the decimal point is 0.0, Hi Peak value is 220.4 and Lo Peak value is 0000.

●Query

Address code	Command	Start address		Number of data		CRC16	
		High	Low	High	Low	Low	High
01	04	00	00	00	04	F1	C9

●Response

Address code	Response command	Amount of data	Measured value		dot position		Hi Peak		Lo Peak		CRC16		NULL
			High	Low	High	Low	High	Low	High	Low	Low	High	1byte
01	04	08	08	9B	00	01	08	9C	00	00	CRC16		00

※It is responded with 1 byte sized NULL(00H) at the end of response frame (next BCC 16).

●Error processing(Slave → Master)

1. Non−supportable command

Address code	Response command	Exception code	CRC16	
01	81	01	81	90

※Set a received highest bit and send it to response command and exception code 01.

2. A start code of queried data is inconsistent with the transmittable code

Address code	Response command	Exception code	CRC16	
01	81	02	81	90

※Set a received highest bit and send it to response command and exception code 02.

3. The number of queried data is bigger than transmittable one

Address code	Response command	Exception code	CRC16	
01	81	03	──	──

※Set a received highest bit and send it to response command and exception code 03.

◎Modbus Mapping Table

●Read Input Register

Start address	Command	Transmission	Remark
30001 (0000)	04	Process value • Standard: Transmit up to −5 to 110% of display range • Scale: Able to transmit from −1999 to 9999% of display range	Data transmittance for measuring error • Standard : Transmit "9999" if "HHHH" is displayed. Transmit "−1999" if "LLLL" is displayed. • Scale : Transmit the setting value of **H−SC** and **L−SC**. Transmit "9999" if "d−HH" is displayed. Transmit "−1999" if "d−LL" is displayed
30002 (0001)	04	Dot setting value	Transmit the position setting value of decimal point of PA−1 **dot** mode. • Standard: 0.00 0→ 0003H, 0.00 → 0002H, 0.0 → 0001H, 0 → 0000H, • Scale: 0.000 → 0103H, 0.00 → 0102H, 0.0 → 0101H, 0 → 0100H,
30003 (0002)	04	High Peak value	Transmit the max. display value of measuring display value
30004 (0003)	04	Low Peak value	Transmit the min. display value of measuring display value

●Read Coil Status

Start address	Command	Transmission	Remark
00001 (0000)	01	Output status • 01h:Lo output • 02h:Go output • 04h:Hi output • 05h:Lo/Hi output	Transmit "1" if the output is ON and "0" for OFF.

◎Setting of communication speed

It is available to set the communication speed at **bps** mode of **PA 2**. The factory default is **9600**bps.

◎Setting of communication address (Setting range: 01 to 99)

It is enable to set the communication speed at **AdrS** mode of **PA 2**. The factory default is **01**.

It is enable to set the communication address up to 99 but only 31 units can be connected to higher system.

◎CRC16 Table

●High order byte table

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0x00	0xC1	0x81	0x40	0x01	0xC0	0x80	0x41	0x01	0xC0	0x80	0x41	0x00	0xC1	0x81	0x40
1	0x01	0xC0	0x80	0x41	0x00	0xC1	0x81	0x40	0x00	0xC1	0x81	0x40	0x01	0xC0	0x80	0x40
2	0x01	0xC0	0x80	0x41	0x00	0xC1	0x81	0x40	0x00	0xC1	0x81	0x40	0x01	0xC0	0x80	0x41
3	0x00	0xC1	0x81	0x40	0x01	0xC0	0x80	0x41	0x01	0xC0	0x80	0x41	0x00	0xC1	0x81	0x40
4	0x01	0xC0	0x80	0x41	0x00	0xC1	0x81	0x40	0x01	0xC0	0x80	0x41	0x01	0xC0	0x80	0x41
5	0x00	0xC1	0x81	0x40	0x01	0xC0	0x80	0x41	0x01	0xC0	0x80	0x41	0x00	0xC1	0x81	0x40
6	0x00	0xC1	0x81	0x40	0x01	0xC0	0x80	0x41	0x01	0xC0	0x80	0x41	0x00	0xC1	0x81	0x40
7	0x01	0xC0	0x80	0x41	0x00	0xC1	0x81	0x40	0x00	0xC1	0x86	0x40	0x01	0xC0	0x80	0x41
8	0x01	0xC0	0x80	0x41	0x00	0xC1	0x81	0x40	0x00	0xC1	0x81	0x40	0x01	0xC0	0x80	0x41
9	0x00	0xC1	0x81	0x40	0x01	0xC0	0x80	0x41	0x01	0xC0	0x80	0x41	0x00	0xC1	0x81	0x40
A	0x00	0xC1	0x81	0x40	0x01	0xC0	0x80	0x41	0x01	0xC0	0x80	0x41	0x00	0xC1	0x81	0x40
B	0x01	0xC0	0x80	0x41	0x00	0xC1	0x81	0x40	0x00	0xC1	0x81	0x40	0x01	0xC0	0x80	0x41
C	0x00	0xC1	0x81	0x40	0x01	0xC0	0x80	0x41	0x01	0xC0	0x80	0x41	0x00	0xC1	0x81	0x40
D	0x01	0xC0	0x80	0x41	0x00	0xC1	0x81	0x40	0x00	0xC1	0x81	0x40	0x01	0xC0	0x80	0x41
E	0x01	0xC0	0x80	0x41	0x00	0xC1	0x81	0x40	0x00	0xC1	0x81	0x40	0x01	0xC0	0x80	0x41
F	0x00	0xC1	0x81	0x40	0x01	0xC0	0x80	0x41	0x01	0xC0	0x80	0x41	0x00	0xC1	0x81	0x40

●Low order byte table

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0x00	0xC0	0xC1	0x01	0xC3	0x03	0x02	0xC2	0xC6	0x06	0x07	0xC7	0x05	0xC5	0xC4	0x04
1	0xCC	0x0C	0x0D	0xCD	0x0F	0xCF	0xCE	0x0E	0x0A	0xCA	0xCB	0x0B	0xC9	0x09	0x08	0xC8
2	0xD8	0x18	0x19	0xD9	0x1B	0xDB	0xDA	0x1A	0x1E	0xDE	0xDF	0x1F	0xDD	0x1D	0x1C	0xDC
3	0x14	0xD4	0xD5	0x15	0xD7	0x17	0x16	0xD6	0xD2	0x12	0x13	0xD3	0x11	0xD1	0xD0	0x10
4	0xF0	0x30	0x31	0xF1	0x33	0xF3	0xF2	0x32	0x36	0xF6	0xF7	0x37	0xF5	0x35	0x34	0xF4
5	0x3C	0xFC	0xFD	0x3D	0xFF	0x3F	0x3E	0xFE	0xFA	0x3A	0x3B	0xFB	0x39	0xF9	0xF8	0x38
6	0x28	0xE8	0xE9	0x29	0xEB	0x2B	0x2A	0xEA	0xEE	0x2E	0x2F	0xEF	0x2D	0xED	0xEC	0x2C
7	0xE4	0x24	0x25	0xE5	0x27	0xE7	0xE6	0x26	0x22	0xE2	0xE3	0x23	0xE1	0x21	0x20	0xE0
8	0xA0	0x60	0x61	0xA1	0x63	0xA3	0xA2	0x62	0x66	0xA6	0xA7	0x67	0xA5	0x65	0x64	0xA4
9	0x6C	0xAC	0xAD	0x6D	0xAF	0x6F	0x6E	0xAE	0xAA	0x6A	0x6B	0xAB	0x69	0xA9	0xA8	0x68
A	0x78	0xB8	0xB9	0x79	0xBB	0x7B	0x7A	0xBA	0xBE	0x7E	0x7F	0xBF	0x7D	0xBD	0xBC	0x7C
B	0xB4	0x74	0x75	0xB5	0x77	0xB7	0xB6	0x76	0x72	0xB2	0xB3	0x73	0xB1	0x71	0x70	0xB0
C	0x50	0x90	0x91	0x51	0x93	0x53	0x52	0x92	0x96	0x56	0x57	0x97	0x55	0x95	0x94	0x54
D	0x9C	0x5C	0x5D	0x9D	0x5F	0x9F	0x9E	0x5E	0x5A	0x9A	0x9B	0x5B	0x99	0x59	0x58	0x98
E	0x88	0x48	0x49	0x89	0x4B	0x8B	0x8A	0x4A	0x4E	0x8E	0x8F	0x4F	0x8D	0x4D	0x4C	0x8C
F	0x44	0x84	0x85	0x45	0x87	0x47	0x46	0x86	0x82	0x42	0x43	0x83	0x41	0x81	0x80	0x40

■Caution for using

1. It is disable to modify Parameter(Baud rate, Address etc)related to communication of MT4 series on line with upper systems such as PC, PLC etc. (Error will occur)

2. First make communication Parameter of MT4 series and master system one.

3. It is not allow to set overlapping communication number at the same communication line. (Error will occur)

4. Please use twist pair wire for RS485 communi−cation.

5. The total length of communication is 800m and max. 31 units can be connected.

6. When connecting communication cable between MT4 series and master systems, the vertical resistance(100 to 120Ω) must be installed at between both communication lines.

7. The setting item of communication parameter is as below.
   ①Start bit : 1bit(Fixed)
   ②Stop bit : 1bit(Fixed)
   ③Parity bit : None(Fixed)
   ④Data bit : 8bit(Fixed)
   ⑤Baud rate : 9600, 4800, 2400(Setting)
   ⑥Address : 01 to 99(Setting)

M4Y/M4W/M5W/M4M Series

▣ Specifications

Classification			Indicator		Single preset output type	Dual preset output type
Measurement		DC, AC voltage	**M4Y-DV-□** **M4Y-AV□-□** **M5W-DV-□** **M5W-AV-□**	**M4W-DV-□** **M4W-AV□-□** **M4M-DV-□** **M4M-AV□-□**	**M4W1P-DV-□** **M4W1P-AV□-□** **M4M1P-DV-□** **M4M1P-AV□-□**	**M4W2P-DV-□** **M4W2P-AV□-□** **M4M2P-DV-□** **M4M2P-AV□-□**
		DC, AC ampere	**M4Y-DA-□** **M4Y-AA□-□** **M5W-DA-□** **M5W-AA-□**	**M4W-DA-□** **M4W-AA□-□** **M4M-DA-□** **M4M-AA□-□**	**M4W1P-DA-□** **M4W1P-AA□-□** **M4M1P-DA-□** **M4M1P-AA□-□**	**M4W2P-DA-□** **M4W2P-AA□-□** **M4M2P-DA-□** **M4M2P-AA□-□**
		AC power (0−10VDC)	**M4Y-W-□** **M5W-W-□**	**M4W-W-□** **M4M-W-□**	**M4W1P-W-□** **M4M1P-W-□**	**M4W2P-W-□** **M4M2P-W-□**
		rpm, speed (0−10VDC) (0−10VAC)	**M4Y-T□-□** **M4Y-S□-□** **M5W-T-□** **M5W-S-□**	**M4W-T□-□** **M4W-S□-□** **M4M-T-□** **M4M-S-□**	**M4W1P-T□-□** **M4W1P-S□-□** **M4M1P-T-□** **M4M1P-S-□**	**M4W2P-T□-□** **M4W2P-S□-□** **M4M2P-T-□** **M4M2P-S-□**
		Power factor (DC4−20mA)	–	**M4W-P** **(Refer to L−45)**	–	–
Max. allowable input			150% for each input specification(At 400VAC:120%)			
Power supply			100−240VAC 50/60Hz ★5VDC (Except for M5W) ★24−70VDC	110/220VAC 50/60Hz ★24−70VDC ★100−240VAC 50/60Hz		
Allowable voltage range			90 to 110% of rated voltage			
Power consumption			DC : 2W, AC : 4VA		DC : 3W, AC : 5VA	
Display method			7 Segment LED display			
Character height			M4Y, M4W, M5W : 14mm / M4W1P, M4W2P, M4M1P, M4M2P : 10mm			
Display accuracy			DC : F·S ±0.2% rdg ±1digit AC : F·S ±0.5% rdg ±1digit			
Sampling period			300ms			
A/D conversion method			Dual slope integral method			
Response time			2sec.(0 to Max.)			
Display frequency			2.5 times/sec.			
Contact capacity			────────		Relay conatact output : 250VAC 3A 1c	Relay conatact output : 250VAC 3A 1c×2
Insulation resistance			100MΩ(at 500VDC megger)			
Dielectric strength			2000VAC 50/60Hz for 1 minute			
Noise strength			±1kV the square wave noise(pulse width : 1μs) by the noise simulator			
Vibration	Mechanical		0.75mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 1 hour			
	Malfunction		0.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 10 minutes			
Shock	Mechanical		300m/s² (30G) in X, Y, Z directions for 3 times			
	Malfunction		100m/s² (10G) in X, Y, Z directions for 3 times			
Relay life cycle	Mechanical		────────		Min. 10,000,000	
	Malfunction		────────		Min. 100,000(250VAC 3A resistive load)	
Ambient temperature			−10 to 50℃(at non−freezing status)			
Storage temperature			−20 to 60℃(at non−freezing status)			
Ambient humidity			35 to 85%RH			
Unit weight			M4Y:Approx. 144g M5W:Approx. 172g	M4W:Approx. 168g M4M:Approx. 262g (M4M−P:Approx. 268g)	M4W1P:Approx. 253g M4M1P:Approx. 290g	M4W2P:Approx. 278g M4M2P:Approx. 316g

※ "★" symbol in power supply is optional. (Customizable)

Autonics

Digital Panel Meter

▣Dimensions

●M4Y
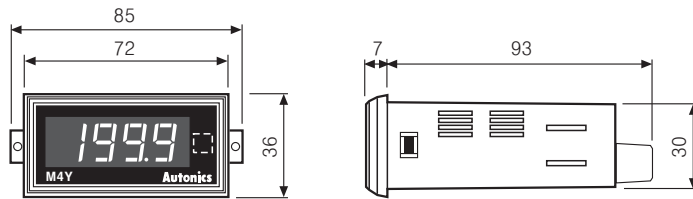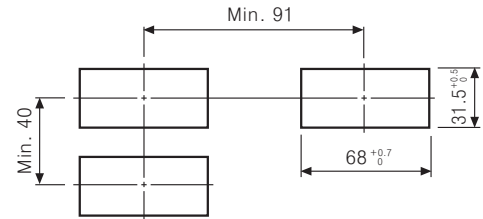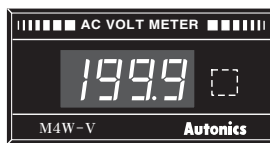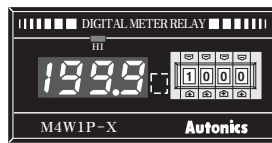
85
72
36

7
93
30

●Panel cut-out

Min. 91
Min. 40
31.5 +0.5 0
68 +0.7 0

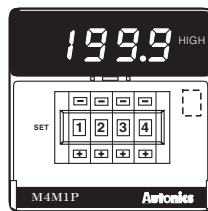※Unit will be displayed in ⸤⸣ of front panel.

(Unit:mm)

●M4W

AC VOLT METER
199.9
M4W-V   Autonics

●M4W1P

DIGITAL METER RELAY
HI
199.9
1000
M4W1P-X   Autonics

●M4W2P

DIGITAL METER RELAY
LO   HI
199.9
1999 HI SET
1000 LO SET
M4W2P-X   Autonics

●M5W

DC VOLT METER
1999.9
M5W-V   Autonics

●Panel cut-out

98
96
48

12
104
44.8

Min. 116
Min. 52
45 +0.6 0
92 +0.8 0

DC VOLT METER
1999.9
M5W-V   Autonics

※Unit will be displayed in ⸤⸣ of front panel.

(Unit:mm)

●M4M

19.99
PANEL METER
M4M   Autonics

●M4M1P

199.9 HIGH
SET 1 2 3 4
M4M1P   Autonics

●M4M2P

1.999 HIGH LOW
HI SET 1 9 9 9
LO SET 1 0 0 0
M4M2P   Autonics

●Panel cut-out

Min. 91
Min. 91
68 +0.7 0
68 +0.7 0

86
□72

199.9 HIGH
SET 1 2 3 4
M4M1P   Autonics

13
113
67
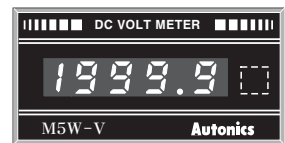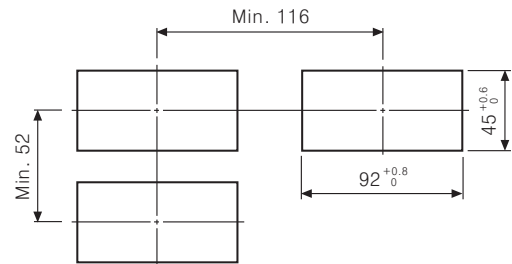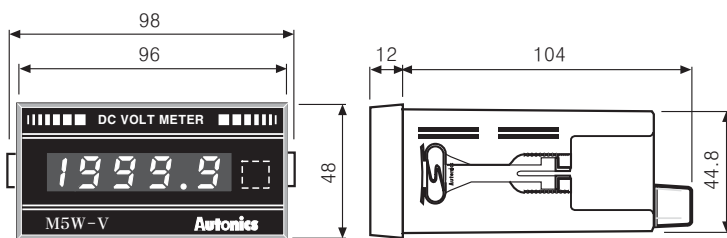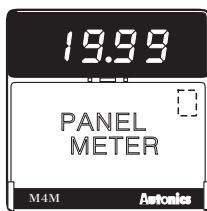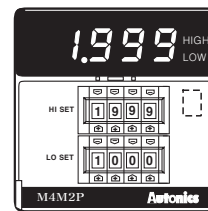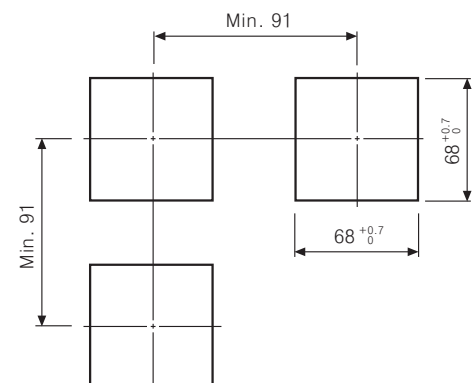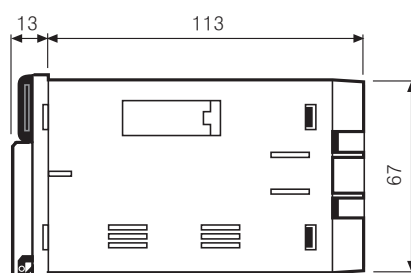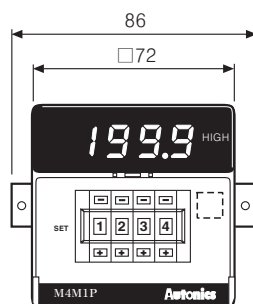
※Unit will be displayed in ⸤⸣ of front panel.

(Unit:mm)

(A) Photo electric sensor

(B) Fiber optic sensor

(C) Door/Area sensor

(D) Proximity sensor

(E) Pressure sensor

(F) Rotary encoder

(G) Connector/ Socket

(H) Temp. controller

(I) SSR/ Power controller

(J) Counter

(K) Timer

(L) Panel meter

(M) Tacho/ Speed/ Pulse meter

(N) Display unit

(O) Sensor controller

(P) Switching power supply

(Q) Stepping motor & Driver & Controller

(R) Graphic/ Logic panel

(S) Field network device

(T) Production stoppage models & replacement

M4Y/M4W/M5W/M4M Series

▣Connections

●M4Y

INPUT — HOLD

| 1 | 2 | 3 | 4 | 5 | 6 |

+ HIGH   − LOW   SOURCE

SOURCE
100−240VAC 50/60Hz
5VDC(Option)
24−70VDC(Option)

●M4W

INPUT — HOLD   220VAC 110VAC
50/60Hz 50/60Hz 0V

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

+ HI   − LOW   SOURCE

Power option

DC SMPS Power	AC SMPS Power
6 7 8	6 7 8
− +	
24−70VDC	100−240VAC 50/60Hz 4VA

●M5W

INPUT

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

+ HI   − LOW

SOURCE
100−240VAC 50/60Hz
24−70VDC(Option)

●M4W1P

NC NO COM   RELAY CONTACT OUT
:250VAC 3A 1c
RESISTIVE LOAD

| 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

HI OUT

INPUT — HOLD   220VAC 110VAC
50/60Hz 50/60Hz 0V

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

+ HI   − LOW   SOURCE

Power option

DC SMPS Power	AC SMPS Power
6 7 8	6 7 8
− +	
24−70VDC	100−240VAC 50/60Hz 5VA

●M4W2P

RELAY CONTACT OUT
:250VAC 3A 1c RESISTIVE LOAD   RELAY CONTACT OUT
:250VAC 3A 1c RESISTIVE LOAD

NC NO COM   NC NO COM

| 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

LOW OUT   HI OUT

INPUT — HOLD   220VAC 110VAC
50/60Hz 50/60Hz 0V

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

+ HI   − LOW   SOURCE

Power option

DC SMPS Power	AC SMPS Power
6 7 8	6 7 8
24−70VDC	100−240VAC 50/60Hz 5VA

●M4M

HI + LOW −   INPUT HOLD

0V 110VAC 220VAC
50/60Hz 50/60Hz

SOURCE

Power option

DC SMPS Power	AC SMPS Power
1 2 3	1 2 3
+ −	
24−70VDC 2W	100−240VAC 50/60Hz 4VA

●M4M1P

HI + LOW −   INPUT HOLD

0V 110VAC 220VAC NO NC
50/60Hz 50/60Hz COM

HI SET OUT
:250VAC 3A 1c
RESISTIVE LOAD

SOURCE

Power option

DC SMPS Power	AC SMPS Power
1 2 3	1 2 3
+ −	
24−70VDC 3W	100−240VAC 50/60Hz 5VA

●M4M2P

HI + LOW −   INPUT HOLD

0V 110VAC 220VAC NO NC
50/60Hz 50/60Hz COM

NO NC COM   LOW SET OUT
:250VAC 3A 1c
RESISTIVE LOAD

HI SET OUT
:250VAC 3A 1c
RESISTIVE LOAD

SOURCE

Power option

DC SMPS Power	AC SMPS Power
1 2 3	1 2 3
+ −	
24−70VDC 3W	100−240VAC 50/60Hz 5VA

Autonics

Digital Panel Meter

DIN W72×H36mm, W96×H48mm, W72×H72mm
Digital panel meter for measuring voltage

### ▣ Features

- Max. display: 19999(M5W), 1999(Others)
- Auto zero function or Hold function(Except for M5W)
- RMS/AVG value selection function(AC Voltage)
- 7 Segment LED Display
- Case size by DIN specification
- Indicator, Single preset output type,
  Dual preset output type

> ⚠ **Please read "Caution for your safety" in operation manual before using.**

▣ Ordering information

M 4 W ☐ − AA ☐ − 1
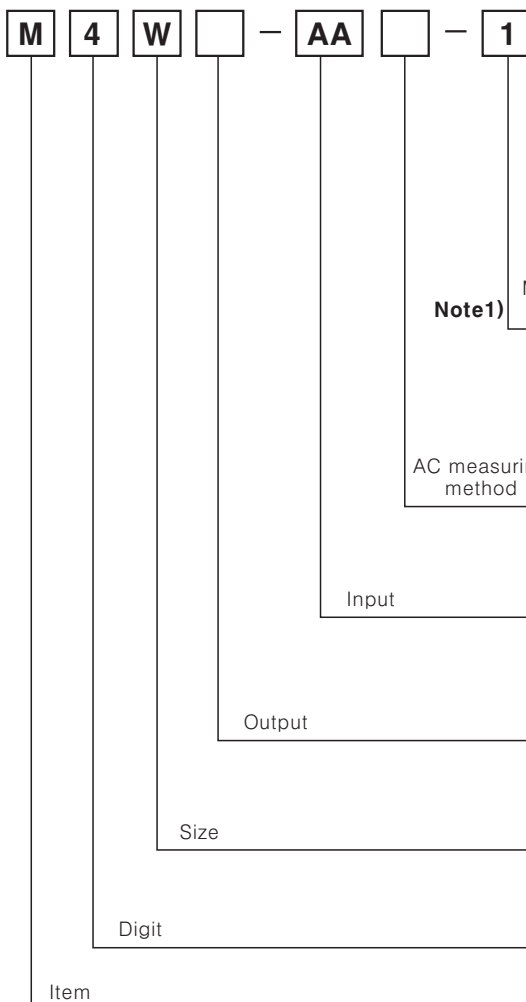
NO	M4Y / M4W / M4M		M5W	
	DC INPUT (F · S)	AC INPUT (F · S)	DC INPUT (F · S)	AC INPUT (F · S)
1	199.9mV	199.9mV	199.99mV	199.99mV
2	1.999V	1.999V	1.9999V	1.9999V
3	19.99V	19.99V	19.999V	19.999V
4	199.9V	199.9V	199.99V	199.99V
5	300V	——	300.0V	400.0V
6	——	400V	——	——
XX	Option		Option	

Note1) Measuring input

Note2) (rows 5, 6)

AC measuring method **Note3)**

Blank	AVG value
R	RMS value

Input

DV	DC volt
DA	DC ampere
AV	AC volt
AA	AC ampere

Output

Blank	Indicator
1P	Single setting
2P	Dual setting

Size **Note4)**

Y	DIN W72×H36mm
W	DIN W96×H48mm
M	DIN W72×H72mm

Digit

4	1999(3½ Digit)
5	19999(4½ Digit)

Item

M	Meter

Note1) Measuring input and display are 1:1.
Note2) Available input can be direct connection if under 300VDC, 400VAC.
Note3) RMS only applies to AC measuring type. Do not enter "R" with DC model.
Note4) M4Y, M5W are indicator.

(A) Photo electric sensor
(B) Fiber optic sensor
(C) Door/Area sensor
(D) Proximity sensor
(E) Pressure sensor
(F) Rotary encoder
(G) Connector/ Socket
(H) Temp. controller
(I) SSR/ Power controller
(J) Counter
(K) Timer
(L) Panel meter
(M) Tacho/ Speed/ Pulse meter
(N) Display unit
(O) Sensor controller
(P) Switching power supply
(Q) Stepping motor & Driver & Controller
(R) Graphic/ Logic panel
(S) Field network device
(T) Production stoppage models & replacement

◼The application of connections

◎Measuring DC voltage
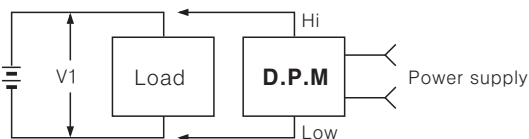
(Fig. 1) Measuring lower than 300VDC of measurement voltage (V1)
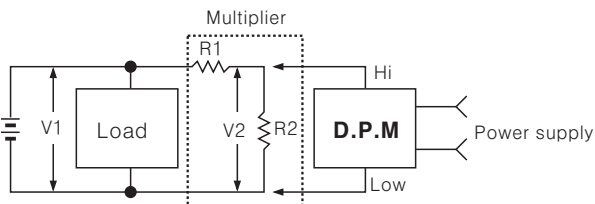
(Fig. 2)Measuring higher than 300VDC of measurement voltage

※When measuring voltage is higher than 300VDC, please select R1 and R2 with multiplying resistance on the external to make V2 less than max. measure—ment voltage.

$$V2 = \frac{R2}{R1+R2} \times V1 \qquad R1 > R2$$

Ex)Ordering D.P.M for measuring 1000VDC
As above Fig. 2, select the R1 value to make 300VDC on R2.
(Generally R1 value will be higher than R2 value.)
Order the D.P.M indicating 1000V for 300VDC.

◎Measuring AC voltage
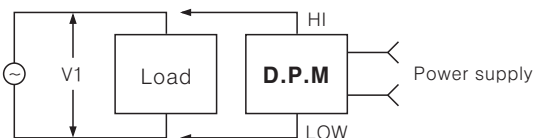
(Fig. 3)Measuring lower than 400VAC of measurement voltage (V1)
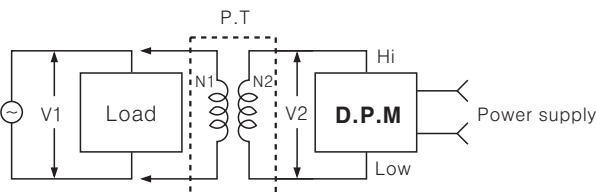
(Fig. 4)Measuring higher than 400VAC of measurement voltage (V1)

※When measuring voltage is higher than 400VAC, please use the P.T on the external. (V2 voltage must be lower than max. measurement voltage)

$$V2 = \frac{N2}{N1} \times V1$$

Ex)Ordering D.P.M for measuring 1000VAC
Select the P.T having 1000VAC of 1st part voltage and 220VAC of 2nd part voltage and order the D.P.M indicating 1000V for 220VAC.

◼Proper usage

- Please notice the product customized by requirement cannot be replaced.
- If it displays arbitrary number even though the power is ON, please remove the input signal and check whether it displays "0000" after short the measurement terminal.
  (Checking auto zero function)
  If it does not display "0000", please connect to our A/S center.
  Note)M5W Series does not have auto zero function.
- If it indicates "1999" or "−1999" during input signal is ON, please turn OFF the power and check the connection condition.
  It is because the input signal is too low or high.
  Note)M5W Series indicates "19999" or "−19999".
- The specification of measurement input, which is indicated in ordering information, is a standard specification, 1:1 of measurement input and process value. When it is an optional specification of AC voltmeter, please mark the specification of P.T after select a model.
  ※Please notice P.T is not included.
- The D.P.M for measuring AC voltage has both AVG type and RMS type separately.
  Because it is produced with AVG type, please mark the model name accurately.
  Ex)In case of M4Y, M4W, M4M Series(Include setting type)
  The model of RMS type: M4W−AVR−6
  The model of AVG type: M4W−AV−6
  ※The specification will be set by sign "R".
  ※M5W Series has RMS type only, and it is not indicated "R" on the model name.
- In case of D.P.M for measuring AC voltage, please check if it is AVG type or RMS type when comparison measuring with other company's products.

Digital Panel Meter

(A)
Photo
electric
sensor

(B)
Fiber
optic
sensor

(C)
Door/Area
sensor

(D)
Proximity
sensor

(E)
Pressure
sensor

(F)
Rotary
encoder

(G)
Connector/
Socket

(H)
Temp.
controller

(I)
SSR/
Power
controller

(J)
Counter

(K)
Timer

(L)
Panel
meter

(M)
Tacho/
Speed/
Pulse
meter

(N)
Display
unit

(O)
Sensor
controller

(P)
Switching
power
supply

(Q)
Stepping
motor &
Driver &
Controller

(R)
Graphic/
Logic
panel

(S)
Field
network
device

(T)
Production
stoppage
models &
replacement

DIN W72×H36mm, W96×H48mm, W72×H72mm
Digital panel meter for measuring ampere

▣Features

- Max. display: 19999(M5W), 1999(Others)
- Auto zero function or hold function(Except for M5W)
- RMS/AVG value selection function(AC Voltage)
- 7 Segment LED display
- Case size by DIN specification
- Indicator, single preset output type,
  Dual preset output type

⚠ **Please read "Caution for your safety" in operation manual before using.**

▣Ordering information

M 4 W ☐ − AA ☐ − 1
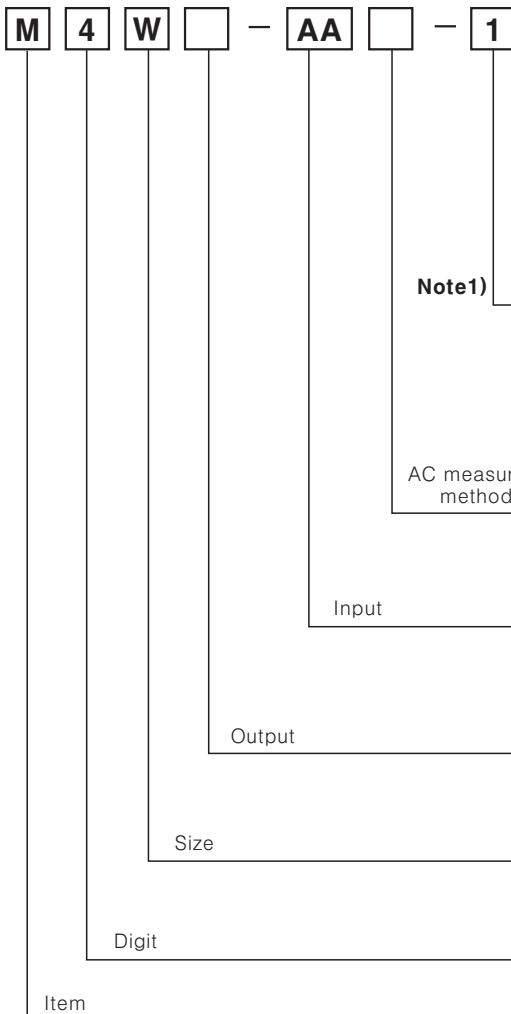
		M4Y / M4W / M4M		M5W	
NO	DC INPUT (F · S)	AC INPUT (F · S)	DC INPUT (F · S)	AC INPUT (F · S)
1	199.9μA	19.99mA	199.99μA	19.999mA
2	1.999mA	199.9mA	1.9999mA	199.99mA
3	19.99mA	1.999A	19.999mA	1.9999A
4	199.9mA	19.99A	199.99mA	19.999A
5	1.999A	199.9A	1.9999A	199.99A
6	19.99A	1999A	19.999A	1999.9A
7	199.9A	——	199.99A	——
8	1999A	——	1999.9A	——
XX	Option		Option	

Measuring input — Note1)

AC measuring method — Note2)

Blank	AVG value
R	RMS value

Input

DV	DC volt
DA	DC ampere
AV	AC volt
AA	AC ampere

Output

Blank	Indicator
1P	Single setting
2P	Dual setting

Size — Note3)

Y	DIN W72×H36mm
W	DIN W96×H48mm
M	DIN W72×H72mm

Digit

4	1999(3½ Digit)
5	19999(4½ Digit)

Item

M	Meter

Note1) Measuring input and display is 1:1 for DC INPUT No.1 to 5 and AC INPUT No.1 to 3, DC INPUT No.6 to 8 is used with DC50mV Shunt, AC INPUT No.4 to 6 are used with C.T(Current transformer)
Note2) RMS only applies to AC measuring type. Do not enter "R" with DC model.
Note3) M4Y, M5W are indicator.

M4Y/M4W/M5W/M4M Series

▣Connections

◎Measuring DC ampere
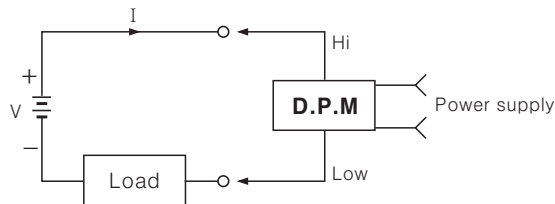
(Fig. 1) Measuring lower than DC2A of current
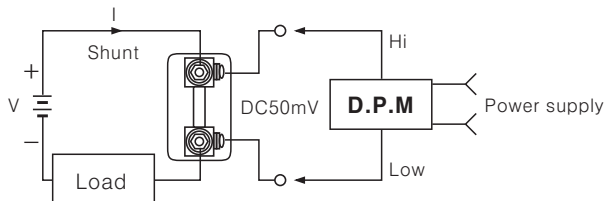
(Fig. 2) Measuring higher than DC2A of current

※Higher than DC2A is using shunt for measuring current.
※Basically the 2nd part of shunt value is DC50mV.

Ex)Ordering D.P.M in case of DC10A of measuring ampere : Select DC10A/DC50mV of shunt and DC50mV/DC10.00A of D.P.M.

◎Measuring AC ampere
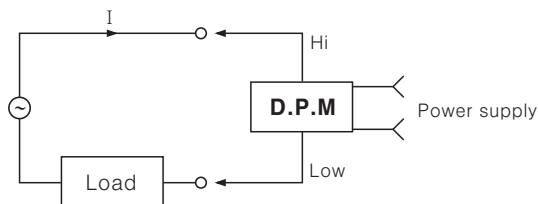
(Fig. 3) Measuring lower than AC5A of current

Ex)Ordering D.P.M in case of lower than AC5A of measuring ampere :
Select M4W－AA－XX AC5A/5.00A
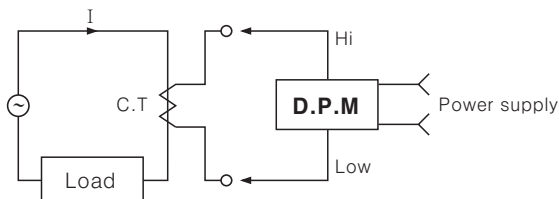
(Fig. 4) Measuring higher than AC5A of current

※ If the current is higher than AC5A, please use C.T.

Ex)How to order D.P.M in case of AC300A of measuring ampere : Select AC300A/5A of C.T and AC5A/300A of D.P.M.

▣Proper usage

- Please notice the product customized by requirement cannot be replaced.
- If it displays arbitrary number even though the power is ON, please remove the input signal and check whether it displays "0000" after short the measurement terminal.
  (Checking auto Zero function)
  If it does not display "0000", please connect to our A/S center.
  Note)M5W Series does not have auto zero function.
- If it indicates "1999" or －1999 during input signal is ON, please turn OFF the power and check the connection condition.
  It is because the input signal is too low or high.
  Note)M5W Series indicates "19999" or "－19999".
- The specification of measurement input, which is indicated in ordering information, is a standard specification, 1:1 of measurement input and process value.
  ※Please notice a shunt and C.T are not included.
- The D.P.M for measuring AC ampere has both AVG type and RMS type separately.
  Because it is produced with AVG type, please mark the model name accurately.
  Ex)In case of M4Y, M4W, M4M Series(Include setting type)
  The model of RMS type: M4W－AAR－5
  The model of AVG type: M4W－AA－5
  ※The specification will be set by sign "R".
  ※M5W Series has RMS type only, and it is not indicated "R" on the model name.
- In case of D.P.M for measuring AC ampere, please check if it is AVG type or RMS type when comparison measuring with other company's products.

Autonics

Digital Panel Meter

(A)
Photo electric sensor

(B)
Fiber optic sensor

(C)
Door/Area sensor

(D)
Proximity sensor

(E)
Pressure sensor

(F)
Rotary encoder

(G)
Connector/ Socket

(H)
Temp. controller

(I)
SSR/ Power controller

(J)
Counter

(K)
Timer

(L)
Panel meter

(M)
Tacho/ Speed/ Pulse meter

(N)
Display unit

(O)
Sensor controller

(P)
Switching power supply

(Q)
Stepping motor & Driver & Controller

(R)
Graphic/ Logic panel

(S)
Field network device

(T)
Production stoppage models & replacement

DIN W72×H36mm, W96×H48mm, W72×H72mm
Digital panel meter for measuring power

▣Features

- Max. display : 19999(M5W), 1999(Others)
- Auto zero function and hold function(Except for M5W)
- Display the output(0−10VDC) from power converter.
  (It is available to correspond when output is
  DC4−20mA, 1−5VDC.)
- 7 Segment LED display
- Case size by DIN specification.
- Indicator, single preset output type,
  Dual preset output type

> ⚠ **Please read "Caution for your safety" in operation manual before using.**

▣Ordering information

```
M  4  W  □ − W − 1
```

Display scale **Note1)**
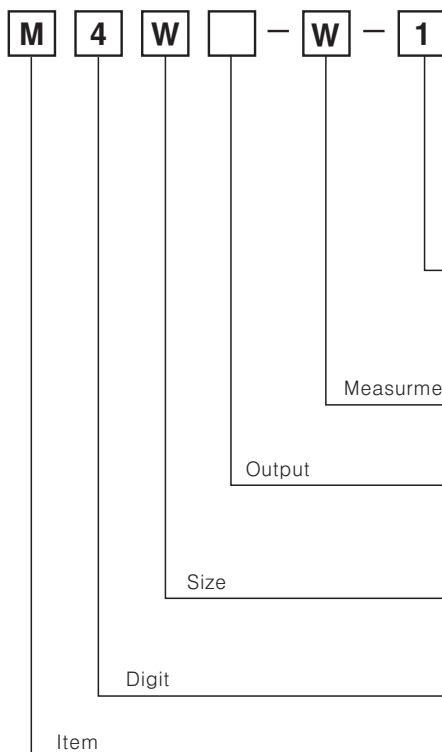
NO	M4Y / M4W / M4M	M5W
	DISPLAY(F.S)	DISPLAY(F.S)
1	199.9W	199.99W
2	1.999kW	1.9999kW
3	19.99kW	19.999kW
4	199.9kW	199.99kW
5	1999kW	1999.9kW
XX	Option	Option

Measurment function

W	Watt meter

Output

Blank	Indicator
1P	Single setting
2P	Dual setting

Size **Note2)**

Y	DIN W72×H36mm
W	DIN W96×H48mm
M	DIN W72×H72mm

Digit

4	1999(3½ Digit)
5	19999(4½ Digit)

Item

M	Meter

Note1) When output specification of power converter is 0−10VDC, display value is maximum.
Note2) M4Y, M5W are indicator.
※If output specification of Converter or power converter is DC4−20mA or 1−5VDC, please use scaling meter.

▣Application of connection
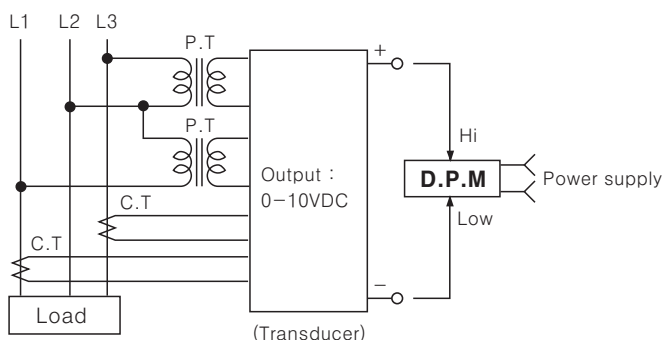
- The specification of measuring input indicated in ordering information, is display value output specification is 0−10VDC.
- When the output of transducer or converter is DC4−20mA or 1−5VDC, please use scaling meter.

M4Y/M4W/M5W/M4M Series

DIN W72×H36mm, W96×H48mm, W72×H72mm
Digital panel meter for measuring Revolution/Speed

▣Features

- Max. display: 19999(M5W), 1999(Others)
- Auto zero function or hold function(Except for M5W)
- RMS/AVG value selection function(AC voltage)
- 7 Segment LED display
- Case size by DIN specification
- Indicator, single preset output type,
  Dual preset output type

⚠ **Please read "Caution for your safety" in operation manual before using.**

▣Ordering information

```
M  4  W  □ −T □ −1
```
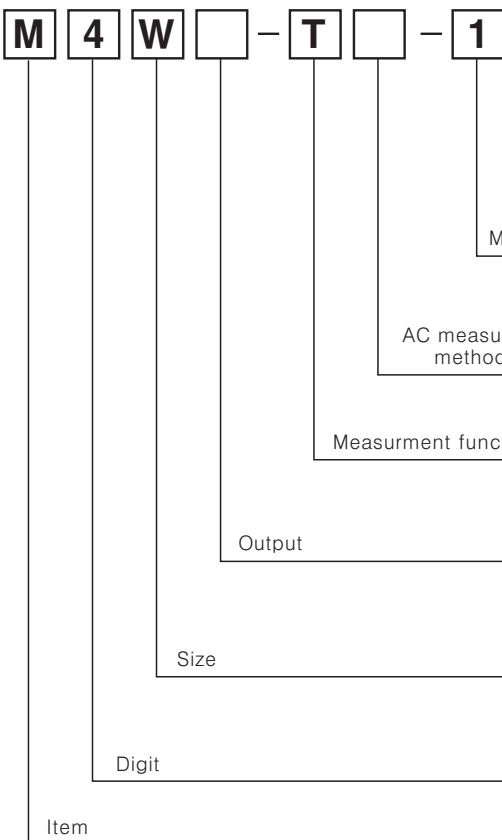
NO	M4Y / M4W / M4M	M5W
	INPUT(F.S)	INPUT(F.S)
1	0−10VDC / 1999	0−10VDC / 1999.9
2	0−10VAC / 1999	0−10VAC / 1999.9
DX	DC Input option	DC Input option
AX	AC Input option	AC Input option

Measuring input

AC measuring method — Note1)

Blank	AVG value
R	RMS value

Measurment function

T	Tacho meter (rpm)
S	Line speed meter (m/min)

Output

Blank	Indicator
1P	Single setting output
2P	Dual setting output

Size — Note2)

Y	DIN W72×H36mm
W	DIN W96×H48mm
M	DIN W72×H72mm

Digit

4	1999(3½ Digit)
5	19999(4½ Digit)

Item

M	Meter

Note1) AC measuring type of M5W only applies to RMS and it is not marked with "R" in the model name.
Note2) M4Y, M5W are indicator.

▣Application of connection
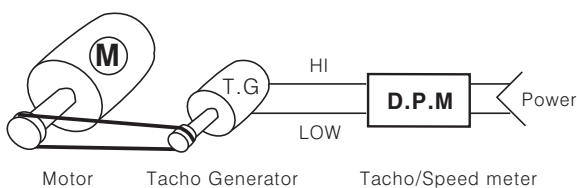
- Tacho Generator(T.G)
  This generator makes a voltage in proportion to revolution speed of motor. The D.P.M receives the voltage and displays the number of revolution and please check the specification of T.G.
- The specification of measuring input indicated in ordering information, is display value when output specification is 0−10VDC and 0−10ADC. Different output specification of tacho generator is optional.

Motor Tacho Generator Tacho/Speed meter

Autonics

Digital Panel Meter

DIN W72×H36mm, W96×H48mm, W72×H72mm

▣Features

Digital scaling meter

- Max. display : 19999(M5W), 1999(Others)
- 7 Segment LED display
- Case size by DIN specification
- Linear display function by INPUT specification
- Indicator, single preset output type, dual preset output type

⚠ **Please read "Caution for your safety" in operation manual before using.**

▣Ordering information

```
M  4  W  □ ─ DI ─ X
```
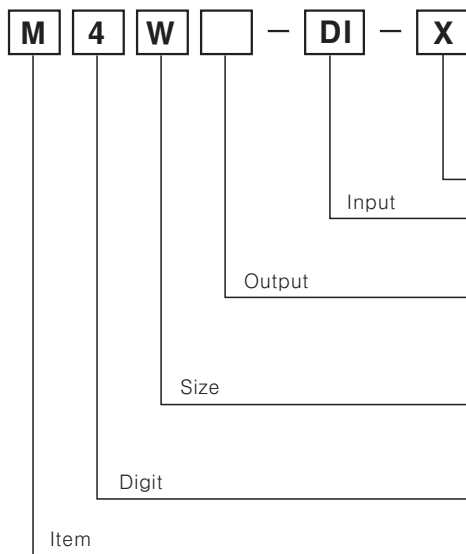
Display scale	X	Display range(Option)
Input **Note1)**	DI	DC4−20mA(1−5VDC : Option)
Output	Blank	Indicator
	1P	Single setting
	2P	Dual setting
Size **Note2)**	Y	DIN W72×H36mm
	W	DIN W96×H48mm
	M	DIN W72×H72mm
Digit	4	1999(3½ Digit)
	5	19999(4½ Digit)
Item	M	Meter

Note1)1−5VDC of measuring input specification is available by option.
　　　 It will be a default value if there is no request for order.
Note2)M4Y, M5W are indicator.

▣Application of connection
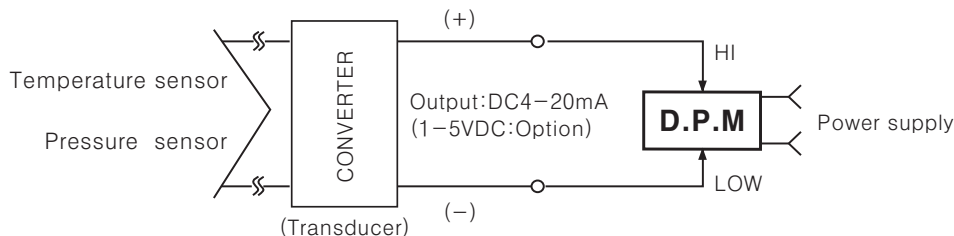
- The measurement input specification of ordering information, is an output specification of converter and DC4−20mA is the standard specification. In case, the output of converter is 1−5VDC, it is customizable.
- DC voltmeter can be produced by requirement, in case, it is out of the 1−5VDC output specification.

M4Y/M4W/M5W/M4M Series

DIN W96×H48mm, Digital panel meter for display the power factor

▣Features

- Display indicator of power factor
- Input：DC4−20mA(Output specification of power factor transducer)
- Display：−0.50 to 1.00 to +0.50

> ⚠ **Please read "Caution for your safety" in operation manual before using.**

▣Ordering information

| M | 4 | W | − | P |

Measurment function

| P | Power factor |

Size

| W | DIN W96×H48mm |

Digit

| 4 | 9999(4 Digit) |

Item

| M | Meter |

▣Specifications

Model		M4W−P
Measurement		Measuring of power factor (cos ϕ)
Input		DC4−20mA
Display		−0.50 to 1.00 to +0.50 cos ϕ
Power supply		110/220VAC 50/60Hz
Allowable voltage range		90 to 110% of rated voltage
Power consumption		4VA
Display method		7 Segment LED display
Character height		14.1mm
Display accuracy		F・S ±0.5% rdg ±1digit
Sampling period		300ms
Response speed		2sec.(0 to Max.)
Point display		Fixed point
Insulation resistance		Min. 100MΩ (at 500VDC megger)
Dielectric strength		2000VAC 50/60Hz for 1 minute
Noise strength		±1kV the square wave noise(pulse width：1μs) by the noise simulator
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 1 hour
	Malfunction	0.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 10 minutes
Shock	Mechanical	300m/s² (30G) in X, Y, Z directions for 3 times
	Malfunction	100m/s² (10G) in X, Y, Z directions for 3 times
Ambient temperature		−10 to 50℃ (at non−freezing status)
Storage temperature		−20 to 60℃ (at non−freezing status)
Ambient humidity		35 to 85%RH
Unit weight		Approx. 317g

▣Connections

INPUT   220VAC 110VAC
         50/60Hz 50/+60Hz 0V

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

+   −
HI   LOW

⚠ SOURCE

▣Application of connection

L1 L2 L3

P.T

P.T

C.T

C.T

Output：
DC4−20mA

+

−

HI

DPM

LOW

Power supply

Load

(Power factor transducer)

▣Dimension

98
96
48

POWER FACTOR METER
1.00 cos ϕ
M4W−P Autonics

12   104
45

● Panel cut−out

Min. 116
Min. 52
45 +0.6 / 0
92 +0.8 / 0
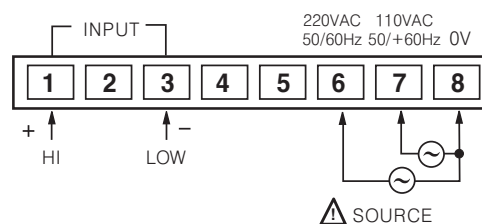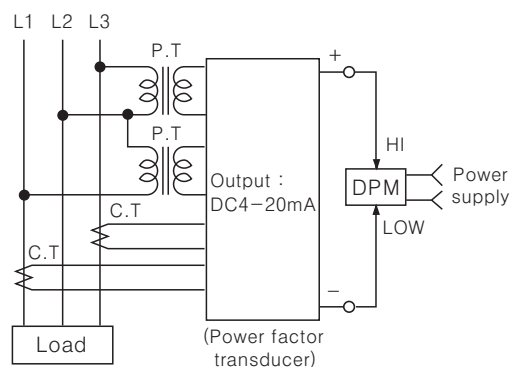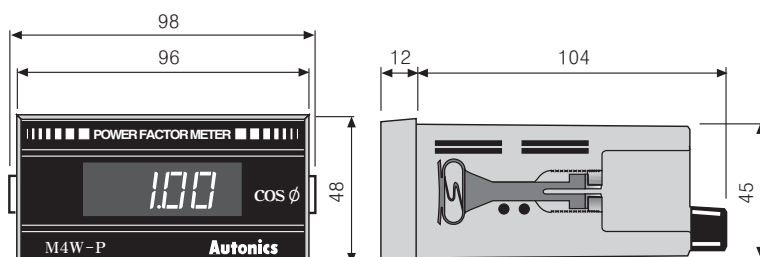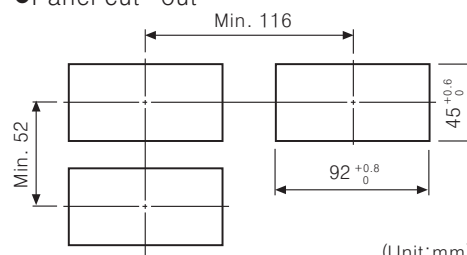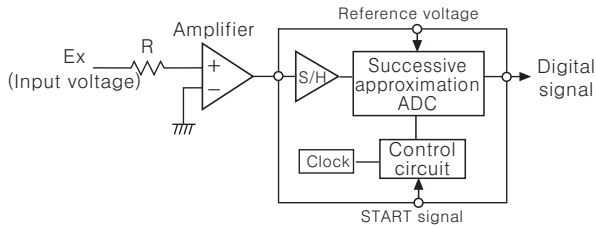
(Unit：mm)

■Analog to digital converter method

1) ADC (Analog to Digital Converter) method

(Figure 1) ACD basic configuration

The measuring speed is fast, and the resolution is high because of sampling the input signal on ADC and then measuring the changes by successive approximation ADC like figure 1. Successive approximation ADC which converts from the highest order bit toward the lower order bit has fast convert time and simple circuit.
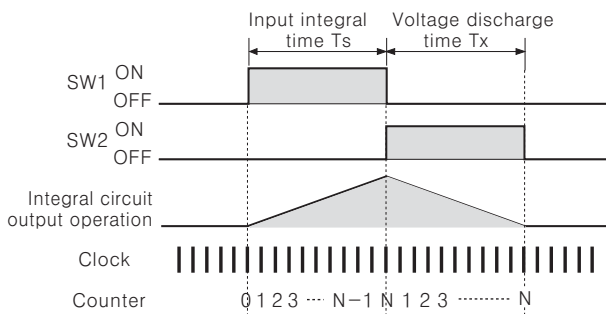
2) Dual slope integration method

Like (Figure 2-1) if SW1 is ON, input voltage Ex is integrated by a certain time Ts. After finish integral of input voltage Ex, SW2 is ON, then when connect to reference voltage Es, it will be integral in the direction of zero voltage. (Based on Es, Ex becomes reverse polarity.) When integral operating becomes zero, comparator stops integral, and this integral time is Tx. The formula is

The formula is $EX = \dfrac{Tx}{Ts} Es$.

The integral times of Successive approximation Es and input voltage Ex are fixed. So, if Tx value is measured with the counter, the digital value proportional to the input can be obtained.
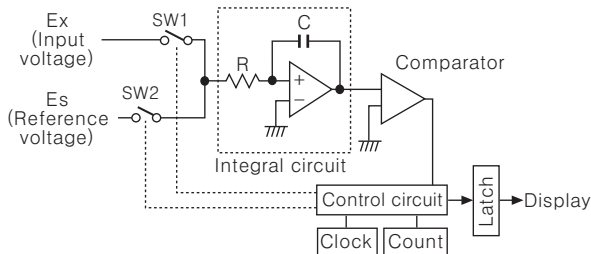
(Figure 2-1) Dual slope integration method basic configuration

(Figure 2-2) Integral waveform

3) Compare ADC and Dual slope integration method

	ADC	Dual slope integration method
Property	◎Fast measurement ◎Improved noise characteristics ◎High resolution ◎Expansive price	◎Stable AD convert ◎Good linearity ◎Reasonable price

■Normal mode rejection ratio (NMR)

NMR is the rate of ripple error occurred by AC voltage when AC voltage of commercial power frequency is mixed at the measuring input terminal during measuring DC voltage. To remove this error, the rate of remove is changed depending on the method of the A/D change.

At the integral method like (Figure 3), the half cycle of + and the half cycle of − are cancelling each other, so mixed noise can be removed effectively, and if integral time of input is integral multiples of power frequency, it is able to get infinite noise remove ratio theoretically. And if filter method is inserted in the input circuit, NMR can be big, but it does not need to do because the response to reply to the change of signal voltage is worse.

$$NMR(dB) = 20 \log \frac{En}{\triangle E}$$

En: Input mixed AC voltage noise peak value
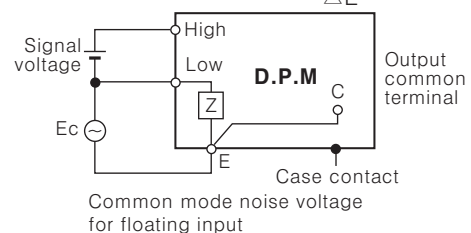△E: Rate of change of output display
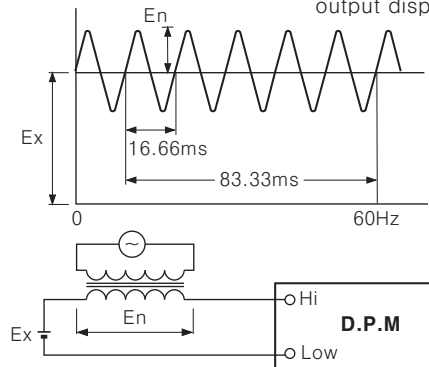
(Figure 3)

■Common mode rejection ratio (CMR)

CMR is the rate of error occurred when receiving noise voltage of same phase (Common Mode) during the measuring input 2 terminals is same size as in common (ground). The measured degree under the real operating condition can be declined often by same phase noise. This noise is that when the potential difference at the earth terminal is caused between earth terminal of panel meter and the ground, the terrestrial current enters into the meter. It is represented between high and low of measurement input terminal. Same phase noise can be neglected several V, dozens of V of the noise voltage when earthing point is long, or the earthing points of substation or the device using high power broadcasting is nearby.

The definition of CMR is that using the circuit on the (Figure 4) when applied E (Common Mode Current : AC Peak voltage), if output is changed as much as △E, the formula is below.

$$CMR(dB) = 20 \log \frac{Ec}{\triangle E}$$

Common mode noise voltage for floating input
(Figure 4)

Technical Description

▣Glossary

◎Measurement of AVG/RMS

● There are two ways to measure voltage or current of AC waveforms.
They are read AVG or RMS to get AC wave. User can select any kinds of measuring method.

● AVG
The average value of each half cycle at AC waveforms.

● RMS
AC is that voltage and current are changed every time not like DC. So, it can show same effectiveness which is the value of voltage and current like DC. Generally RMS of AC is the value of DC which is spent same quantity of electrical energy during same time at the same resistance. Generally use Root mean square(RMS) to get the real RMS value because AC has lots of electrostriction. (For sine wave)

$$ AVG = \frac{2Vm}{\pi} = 0.637Vm $$

$$ RMS = \frac{Vm}{\sqrt{2}} = 0.707Vm $$
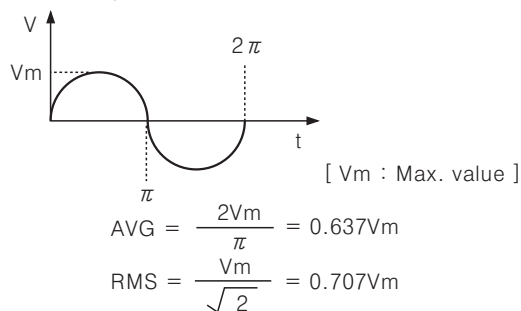
● The result of measuring electrostriction waveform
Measuring the average value :
There can be big display deviation by the rate of electrostriction of waveform.
Measuring the RMS value :
There is no display deviation when measuring RMS value because sine wave or no sinusoidal wave is measured by its quantity of heat.

● In conclusion, the waveform close to sine wave does not have any big difference using AVG or RMS, but RMS is better to measure electrostriction of waveform.

● We produce both models for measuring AVG and RMS. For RMS model, indicate "R" on the name of the model, but no "R" for AVG model.
But, there is only RMS measuring model for M5W Series, and "R" is not on the name of the model. And the method of AVG and RMS can be selected on the parameter for multi panel meter.

◎Display accuracy

Display accuracy means the maximum error guaranteed by maker. It is displayed by % on the full scale of meter. (Full scale: the maximum display range. For 3½ line is *1999*, 4 line is *9999*, 4½ line is *9999*.)

Ex) The display accuracy of M4Y Series is ±0.2 rdg, ±1 digit for full scale. So, 1999 × ±0.2% = ±4digit, after include reading error ±1digit, the display accuracy is ±5 digit. rdg is the code address of reading.

◎AUTO ZERO function

When input is zero, corrects the offset value in the inner circuit, and displays "*000*" or "*0000*".

◎HOLD function

The function holds the display value by shorting and hold terminal when it is difficult to read the display value by changing input frequently.

◎Display decimal point

All models adopt fixed decimal point function. Please do not change the decimal point arbitrarily. (Except multi-meter and scale function embedded types) Please contact main office or branches if there is any change.

▣Proper usage

● Please read this catalog before buy or use the Panel Meter. The shipped product which is produced by order error cannot be exchanged.

● After install this product, even though the input signal is zero if arbitrary number is shown, cut measurement input terminal and check that "*0000*" is displayed after remove input signal. (Check auto zero function)
If "*0000*" is not displayed, please contact us, but MT4Y, MT4W series are able to revise this error using error correction function.
Note) M5W series does not have Auto Zero function.

● After install this product, when input signal is applied if "*1999*" or "*-1999*" is displayed, it means that input signal is bigger than input specification or measurement input is not correct. In this case, shut down the power and check wires.
Note) M5W series displays "*19999*" or "*-19999*", but Error display function embedded displays own error code.

● Be careful when order products because there are standard and option specifications for power supply of D.P.M.

Series	Standard	Option
M4Y Series	100-240VAC	5VDC, 24-70VDC
M4W Series	110/220VAC	24-70VDC, 100-240VAC
M5W Series	100-240VAC	24-70VDC
M4M Series	110/220VAC	24-70VDC, 100-240VAC
MT4Y Series	100-240VAC	———
MT4W Series		12-24VDC

※Products for 24-70VDC cannot use 12VDC.
※Please fill in the supply voltage specification when order option products. If it does not fill in, the product will be in standard specification.

●The output of D.M.P for single setting works as the upper limit alarm output. If the measured value is higher than high setting value, the output works, and if the measured value is lower than high set value, the output does not work.
Applied series : M4W1P, M4M1P Series

OFF	ON

▲
High S.V
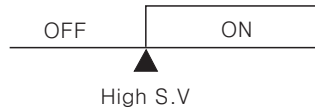
●The output of D.M.P for dual setting works as the upper, lowest limited alarm output. The output works if the measured value is higher than high setting value or lower than low setting value. And if the measured value is lower than high setting value, and higher than low setting value, the output does not work. (The upper, lowest limits work separately.)
Note) The setting value displays Error when Low ≥ High. Please set Low < High.
Applied series : M4W2P, M4M2P Series

ON	OFF	ON

▲   ▲
Low S.V   High S.V

●Multi panel meter (MT4Y/MT4W) works as triple output (LO, GO, HI), and provides 5 types of output except the upper limit output.
(oFF, LSt, HSt, LHSt, LLSt, HHSt, LdSt mode)
Ex) The upper/lowest limit alarm output(LHSt mode)

	OFF		ON		OFF	
ON	H	OFF		OFF	H	ON

▲   ▲
LO   GO   HI
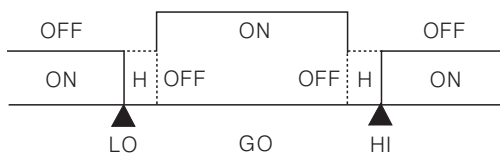
※Please refer to L−33page for more detail information.

●Use environment
1) Operate at temperature −10 to 50℃, humidity 85%. Please use at the room temperature because temperature will affect the accuracy of the measurement.
2) Please avoid the condition of condensation caused by the rapid change of temperature.
3) Please be careful not to cause vibration or shock.
Please do not use in the surrounding of gases, dust, chemicals which is harmful to electric devices.
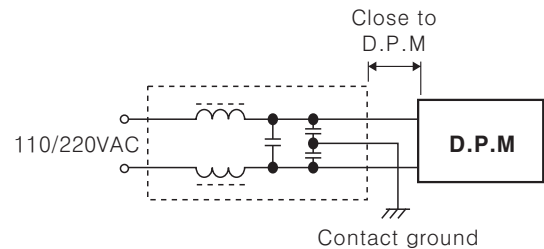
●Storage
When store items for long term, avoid direct sunlight, keep in −20 to 60℃ temperature range and under 30 to 85% relative humidity. Keep the packaged products like factory condition.
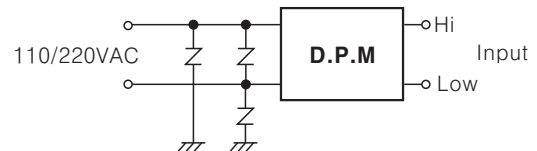
●Noise
The biggest problem is the noise which is mixed into power line at the AC power panel meter. Anti−noise condenser is available between wires at the 1st part of power Trans. But, it is difficult to put in the perfect anti−noise circuit in the small product like panel meter.
Please use noise absorbing circuit like filter or varistor at the outside line when abnormal voltage is occurred by power relay, magnet S/W, using high frequency device, high voltage spark, and thunderbolt at the same line.
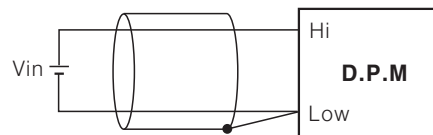
1. Line Filter method

Close to D.P.M

110/220VAC   D.P.M

Contact ground

2. Varistor, ZNR method
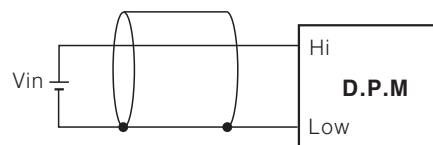
110/220VAC   D.P.M   Hi
Input
Low

●Input line
If the measuring input wire is long, please must use the shield wire at the place where noise can be occurred often.

1. Use 2 core Shield wire

Hi
Vin   D.P.M
Low

2. Use 1 core Shield wire

Hi
Vin   D.P.M
Low