

Autonics

PULSE METER
MP5W SERIES
M A N U A L



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

Caution for your safety

- ※Please keep these instructions and review them before using this unit.
- ※Please observe the cautions that follow;
 - Warning** Serious injury may result if instructions are not followed.
 - Caution** Product may be damaged, or injury may result if instructions are not followed.
- ※The following is an explanation of the symbols used in the operation manual.
 - △caution:Injury or danger may occur under special conditions.

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

- Caution**
 - 1. This unit shall not be used outdoors.**
It might shorten the life cycle of the product or give an electric shock.
 - 2. When wire connection for power input and measuring input, the tightening strength for screw bolt on terminal block should be over than 0.74N.m~0.90N. m.**
It may result in malfunction or fire due to contact failure.
 - 3. Please observe specification rating.**
It might shorten the life cycle of the product and cause a fire.
 - 4. Do not use the load beyond rated switching capacity of Relay contact.**
It may cause insulation failure, contact melt, contact failure, relay broken, fire etc.
 - 5. In cleaning the unit, do not use water or an oil-based detergent.**
It might cause an electric shock or fire that will result in damage to this product.
 - 6. Do not use this unit at place where there are flammable or explosive gas, humidity, direct ray the sun, radiant heat, vibration, impact etc.**
It may cause a fire or explosion.
 - 7. Do not inflow dust or wire dregs into inside of this unit.**
It may cause a fire or mechanical trouble.
 - 8. Please connect properly after checking the polarity of measuring terminals.**
It may cause a fire or explosion.

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

Ordering information

MP	5	W	-	4	N		Main output (Comparative value output)	Sub output (Display value output)
							N Indicator	-
							A Relay five-stage(HH, H, GO, L, LL)	-
							1 Relay three-stage(H, GO, L)	-
							2 NPN open collector quintuple output	BCD Dynamic
							3 PNP open collector quintuple output	BCD Dynamic
							4 NPN open collector quintuple output	PV transmission output (DC4-50mA)
							5 PNP open collector quintuple output	PV transmission output (DC4-50mA)
							6 NPN open collector quintuple output	Low speed serial output
							7 PNP open collector quintuple output	Low speed serial output
							8 NPN open collector quintuple output	RS485 communication
							9 PNP open collector quintuple output	RS485 communication
							2 24VDC	
							4 100~240VAC 50/60Hz	
							W DIN W96 X H48mm	
							5 99999(5 Digit)	
							MP Pulse meter	

※PNP open collector output: Option

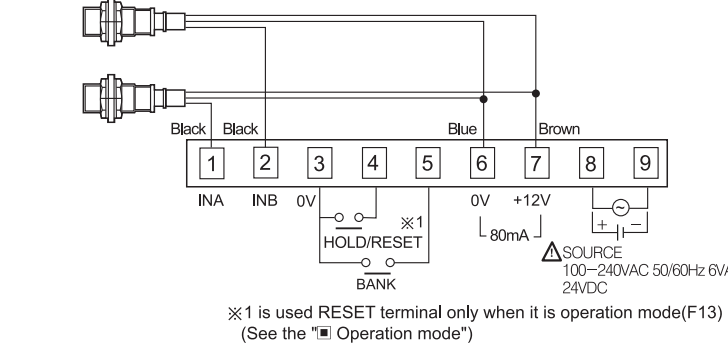
Specifications

Series		MP5W-2□	MP5W-4□
Display method		7 Segment LED(Zero Blanking)	
Character size		W7 X H14mm	
Max. indication		5digit(-19999 to 99999)	
Power supply		24VDC	100-240VAC 50/60Hz
Allowable operation voltage		90 to 110% of rated voltage	
Power consumption		Max. 7W	Max. 6VA
Power for external sensor		12VDC ± 10%, 80mA	
Input frequency		● Solid state input : Max. 50kHz(Pulse width:Min. 10μs) ● Contact input : Max. 45Hz(Pulse width:Min. 11ms)	
Input level		[Voltage input] High: 4.5-24VDC, Low: 0-1VDC, [No-voltage input] Residual voltage: Max. 1V	
Measuring range		● Mode F1, F2, F7, F8, F9, F10 : 0.0005Hz to 50kHz ● Mode F3: 0.02s to 3,200s ● Mode F4, F5, F6: 0.01s to 3,200s ● Mode F11, F12, F13: 0 to 4 X10 ⁹ Count	
Measuring accuracy (23 ± 5°C)		● Mode F1, F2, F7, F8, F9, F10: F.S. ± 0.05% rdg ± 1Digit ● Mode F3, F4, F5, F6: F.S. ± 0.01% rdg ± 1Digit	
Display accuracy		0.05 / 0.5 / 1 / 2 / 4 / 8sec.(The same as update output cycle)	
Operation mode		Number of revolution/Speed/Frequency(F1), Passing speed(F2), Cycle(F3), Passing time(F4), Time width(F5), Time difference(F6), Absolute rate(F7), Error ratio(F8), Density(F9), Error(F10), Length measurement(F11), Interval(F12), Integration(F13)	
Prescale function		Direct input method(0.0001X10 ⁻⁹ to 9.9999X10 ⁹)	
Hysteresis		0 to 9999※1	
Other functions		● Lock setting function	

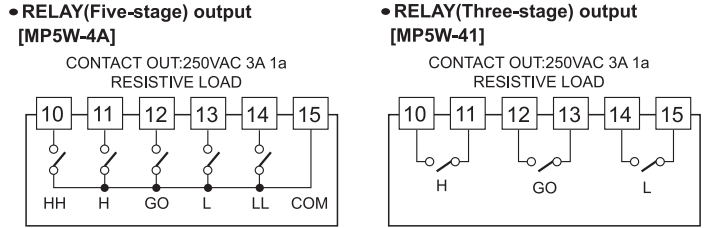
※Condition for use in environment is no freezing or condensation.
※1: The hysteresis setting range is changed by the setting position of decimal point.

Connections

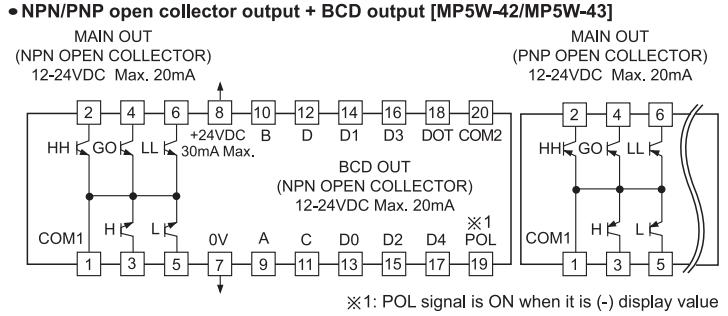
<Main terminal block>



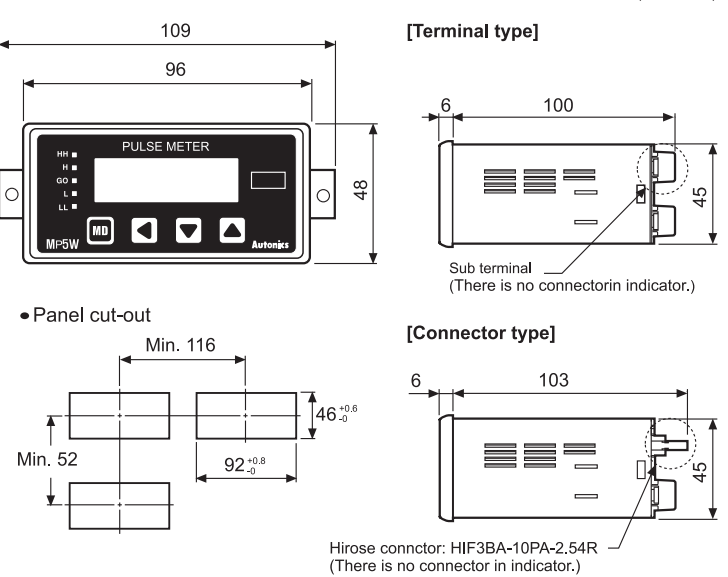
<Sub(Optional) terminal block>



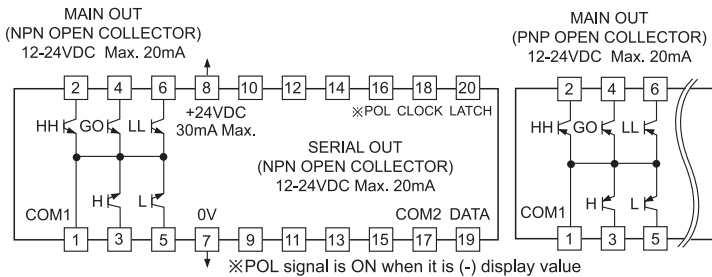
<Sub(Optional) output connector>



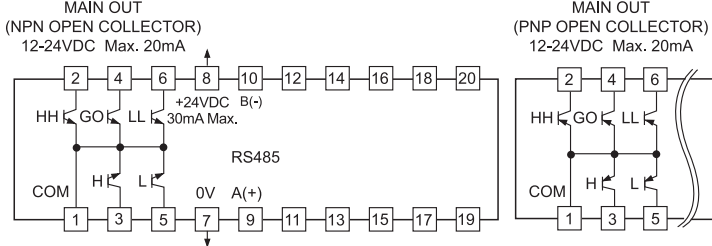
Dimensions



NPN/PNP open collector output + Low speed serial output[MP5W-46/MP5W-47]



NPN /PNP open collector output + RS485 communication output [MP5W-48/MP5W-49]



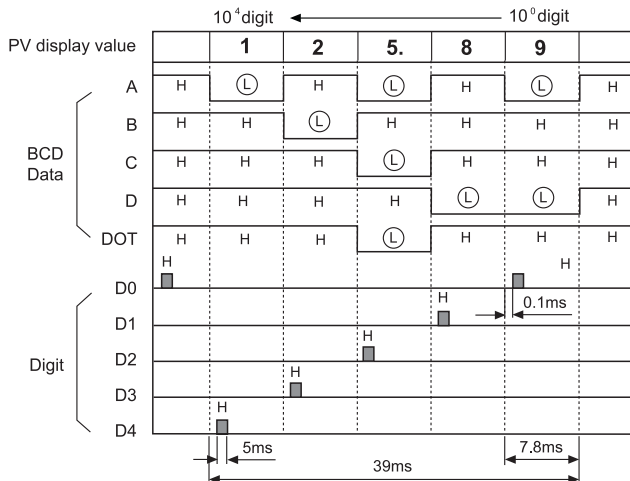
Input/Output

- Input specification**
 - 1. Input signal**
 - ①Solid state input
 - Input frequency: 50kHz(Max.)
But, standard duty rate of input signal is 1:1, ON/OFF pulse width should be each over 10μs.
 - ②Input voltage Level : ON voltage → 4.5-24V, OFF voltage → 0-1.0V
 - ③Timing diagram showing ON/OFF pulse width and Min. 10μs.
- 2. Input type**
MP5W has NPN input and PNP input and it is able to select it in Parameter 1 group.
 - (1)NPN input type
 - ①Contact
 - ②NPN voltage output type sensor
 - ③NPN O.C. output type sensor
 - (2)PNP input type
 - ①Contact
 - ②PNP voltage output type sensor
 - ③PNP OUC output type sensor
- Output specification**
 - 1. Relay output**
 - ①Output : Comparative or alarm output(See the "Output mode")
 - ②Output method : Relay
 - ③Contact capacity : 250VAC 3A resistive load
 - ④Life cycle : Mechanical-20million times(Switch times 180 times/min.)
Electrical-Min.100,000 times(3A 250VAC at resistive load)
(Switch times : 20 times/min.)
 - 2. TR output**
 - ①Output : Comparative or alarm output(See the "Output mode")
 - ②Output method : NPN / PNP Open collector
 - ③Rated load voltage : 12-24VDC
 - ④Max. load current : 20mA

3. BCD Dynamic output (negative logic)

- ①Output : Display value
- ②Output signal : BCD Data(A, B, C, D, DOT) ← A: Lowest bit, Dot: Highest bit
Digit Data(D0, D1, D2, D3, D4) ← D0: Lowest digit, D4: Highest digit
- ③Output type : NPN Open Collector
- ④Rated load voltage : 12-24VDC
- ⑤Max. load current : 20mA

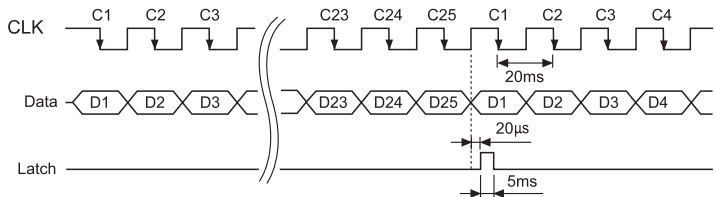
Ex) When display value is 125.89



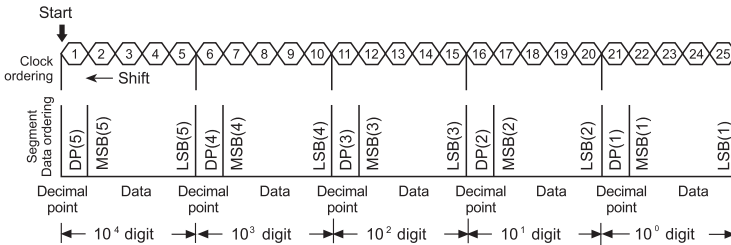
4. Low speed serial output (negative logic)

- ①Output : Display value
- ②Output signal : Clock, Data, Latch
- ③Clock cycle : 50Hz
- ④Output CLK bit : 25 bit
- ⑤Output Data bit : 25 bit
- ⑥Output form: NPN Open Collector
- ⑦Rated load voltage : 12-24VDC
- ⑧Max. load current : 20mA

●Serial transmission time diagram

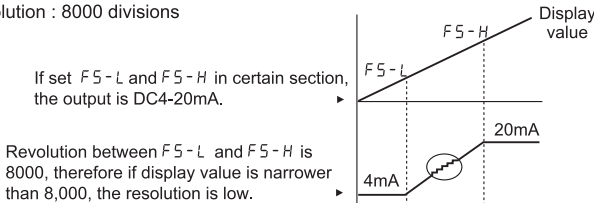


●Data output sequence when it is serial transmission



5. PV transmission output(DC4-20mA)

- ①Application : To transmit the measured value
- ②Function :
This function is to transmit DC4-20mA converted from measured display value between High limit output(F5-H) and Low limit(F5-L).
- ③Range of High/Low limit output setting
 - High limit setting range(F5-H): within from min. to max. range of measurement
 - Low limit setting range(F5-L): within from min. to max. within range of measurement (F5-H should be over "1" bigger than F5-L)
- ④Resistive load : Max. 600Ω
- ⑤Resolution : 8000 divisions



6. RS485 communication output

- ①Address : 0 to 99 address
- ②Transmission speed(Baud rate) : 2400/4800/9600 bps
- ③Transmission code : ASCII
- ④Parity Bit : No
- ⑤Data Bit : 8 Bit
- ⑥Stop Bit : 1 Bit
- ⑦Communication items
 - MP5W ← PC : Comparative value of each bank data, Prescale value and Peak value, RESET control
 - MP5W → PC : Comparative value of each bank data, Prescale value and Peak value, Display value

■ Operation mode

- Select operation mode from **mode**(mode) of Parameter 1 group.

- There are 13 kinds of operation mode in this unit.

● F1 mode (Frequency/Number of revolution/Speed)

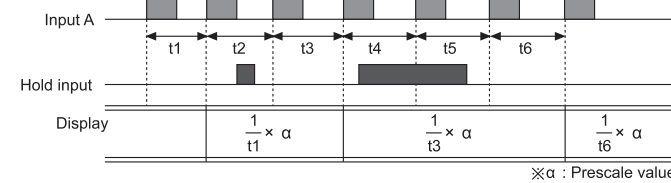
This mode is to display calculated frequency or number of revolution, speed by measuring frequency of Input A,
 1)Frequency(Hz) = $f \times \alpha$ ($\alpha = 1$)
 2)Number of revolution(rpm) = $f \times \alpha$ ($\alpha = 60$)
 3)Speed(m/min) = $f \times \alpha$ ($\alpha = 60L$)
 For several objects, $\alpha = \frac{60L}{N}$

※N= Number of detected objects(number of pulses per 1 revolution)
 L = The moved length of conveyor belt for 1 pulse [m]

●Display value and display unit

Display value	Display unit	α (Prescale value)
Frequency	Hz	1
	kHz	0.001
Number of revolution	rps	1
	rpm	60
Speed	mm / sec	1,000L
	cm / sec	100L
	m / sec	L
	m / min	60L
	km / hour	3.6L

●Time chart



● F2 mode(Passing speed)

It displays the passing speed between ON of input A and ON of input B.

Passing speed(V) = $f \times \alpha$ ($\alpha = L[m]$)

※f : This is reciprocal number of the time between ON of input A and ON of input B

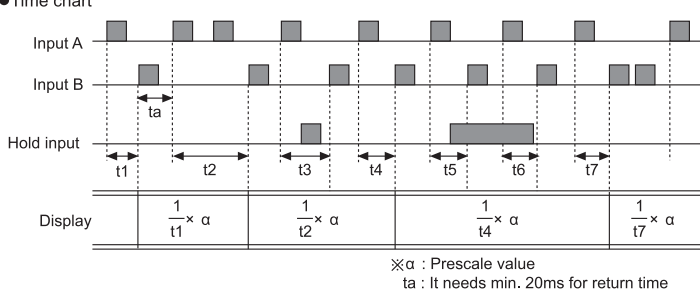
L : The distance between input A and input B[m]

●Display value and display unit

Display value	Display unit	α (Prescale value)
Passing speed	mm / sec	1,000L
	cm / sec	100L
	m / sec	L
	m / min	60L
	km / hour	3.6L

※Display unit of factory default : m/sec

●Time chart



● F3 mode(Cycle)

It displays the time from when input A is ON to the next ON of input A.

Cycle(T) = t

※t : Measurement time[sec]

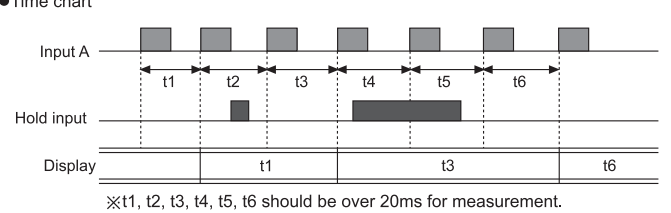
●Display value and display unit

Display value	Display unit	MIN
Cycle	SEC	
	999.99sec.	999.99min.
	9999.9sec.	9999.9min.
	99min.	99hour
	59.9sec.	59.9min.
	9hour 59min. 59sec.	999hour 59min.
	99sec.	999min.
	99999sec.	99999min.

※Set the display unit at the **Unit**(Time unit) of Parameter 2.

※Display unit of factory default : 999.99sec.

●Time chart



※t1, t2, t3, t4, t5, t6 should be over 20ms for measurement.

● F4 mode(Passing time)

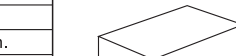
It displays the passing time of certain distance as measuring the time between ON and the next ON of Input A.

Passing time[sec] = $t \times \alpha$ ($\alpha = \frac{L[m]}{\text{Moving distance within 1 pulse cycle}[m]}$)

●Display value and display unit

Display value	Display unit	
Passing time	SEC	MIN
	999.99sec.	999.99min.
	9999.9sec.	9999.9min.
	99hour 59.9sec.	99hour 59.9min.
	9hour 59min. 59sec.	999hour 59min.
	99999sec.	99999min.

L: Certain distance[m]

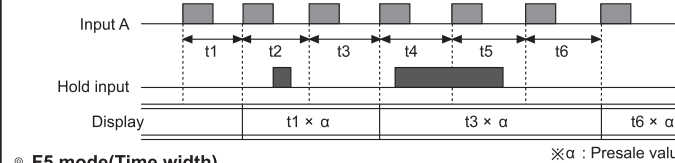


L : Distance[m]

※Display unit of factory default : 999.99sec.

※Set the display unit at the **Unit**(Time unit) of Parameter 2.

●Time chart



● F5 mode(Time width)

It displays the ON time of input A.

Time width[T] = t

※t : ON measurement time of input A[sec]

●Display value and display unit

Display value	Display unit	MIN
Time width	SEC	999.99min.
	999.99sec.	999.99min.
	9999.9sec.	9999.9min.
	99hour 59.9sec.	99hour 59.9min.
	9hour 59min. 59sec.	999hour 59min.
	99999sec.	99999min.



Motor

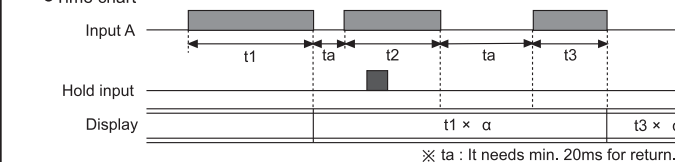
Stamp

× Display unit of factory default : 999.99sec.

※Set the display unit at the **Unit**(Time unit) of parameter 2.

※Display unit of factory default : 999.99sec.

●Time chart



● F6 mode(Time interval)

It displays the time from input A is ON to input B is ON.

Time difference(T) = t(ta to tb)

※t(ta to tb):The measurement time from input A is ON to input B is ON[sec]

●Display value and display unit

Display value	Display unit	
Time interval	SEC	MIN
	999.99sec.	999.99min.
	9999.9sec.	9999.9min.
	99hour 59.9sec.	99hour 59.9min.
	9hour 59min. 59sec.	999hour 59min.
	99999sec.	99999min.

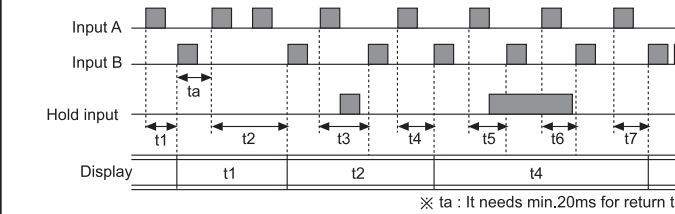


The diagram illustrates the MP-5W sensor system. It shows two sensors, Sensor A and Sensor B, positioned on a surface. A dashed line indicates a signal path from Sensor A to Sensor B. A small rectangular device, likely a control unit or power source, is connected to both sensors. The label 'MP-5W' is located in the top right corner of the diagram area.

※Display unit of factory default : 999.99sec.

※Display unit can be set at **Unit**(Time unit) of Parameter 2.

●Time chart



● F7 mode(Absolute rate)

It displays how many percentage(%) faster or late, speed, volume etc. of Input B against input A)

Absolute rate = (Input B / Input A) × 100%

Absolute rate = $\frac{\text{Frequency of input B[Hz]} \times \text{Ba}}{\text{Frequency of input A[Hz]} \times \text{Aa}} \times 100[\%]$

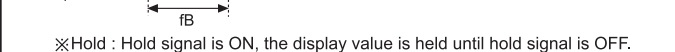
●Display value and display unit

Display value	Display unit
Absolute rate	%

※Aa : Prescale value of input A

Ba : Prescale value of input B

●Time chart



※Hold : Hold signal is ON, the display value is held until hold signal is OFF.

● F8 mode(Error ratio)

It displays how many percentage(%) faster or late of Input B against Input A.

Absolute rate = $\frac{\text{Input B-Input A}}{\text{Input A}} \times 100[\%]$

Error rate = $\frac{(\text{Frequency of input B[Hz]} \times \text{Ba}) - (\text{Frequency of input A[Hz]} \times \text{Aa})}{\text{Frequency of input A[Hz]} \times \text{Aa}} \times 100[\%]$

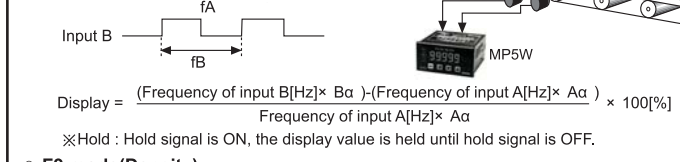
●Display value and display unit

Display value	Display unit
Error rate	%

※Aa : Prescale value of input A

Ba : Prescale value of input B

●Time chart



※Hold : Hold signal is ON, the display value is held until hold signal is OFF.

● F9 mode(Density)

It displays the density rate of input B against total sum of input A and input B.

Density = $\frac{\text{Input B}}{\text{Input A} + \text{Input B}} \times 100[\%]$

Density = $\frac{\text{Frequency of input B[Hz]} \times \text{Ba}}{(\text{Frequency of input A[Hz]} \times \text{Aa}) + (\text{Frequency of input B[Hz]} \times \text{Ba})} \times 100[\%]$

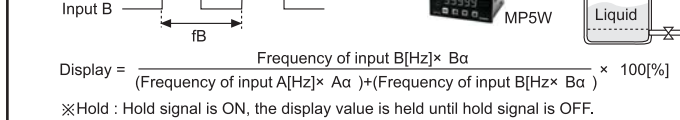
●Display value and display unit

Display value	Display unit
Density	%

※Aa : Prescale value of input A

Ba : Prescale value of input B

●Time chart



※Hold : Hold signal is ON, the display value is held until hold signal is OFF.

● F10 mode(Error)

It displays the error between standard Input A and comparing Input B.

Error = Input B - Input A

Error = (Frequency of input B[Hz] × Ba) - (Frequency of input A[Hz] × Aa)

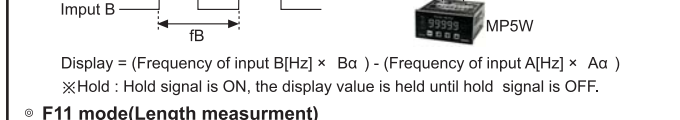
●Display value and display unit

Display value	Display unit
Error	END User setting unit

※Aa : Prescale of input A

Ba : Prescale of input B

●Time chart



※Hold : Hold signal is ON, the display value is held until hold signal is OFF.

● F11 mode(Length measurement)

It displays the number of Input A pulse while Input B is ON.

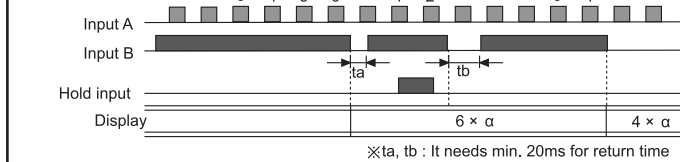
Length measurement = P × α (※P : Number of input A pulse, α : Prescale value)

●Display value and display unit

Display value	Display unit
Length measurement	Quantity[EA]

※Factory default(Unit) : Quantity[EA]

●Time chart



※ta, tb : It needs min. 20ms for return time

● F12 mode(Interval)

It displays the number of Input A pulse from Input B is ON to the time Input B is ON next.

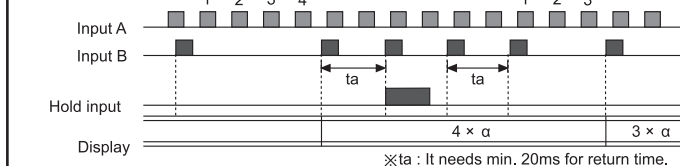
Interval = P × α (※P : Number of input A pulse, α : Prescale value)

●Display value and display unit

Display value	Display unit
Interval	Quantity[EA]

※Factory default(Unit) : Quantity[EA]

●Time chart



※ta : It needs min. 20ms for return time.

F13 mode(Integration)

It displays the counting value against pulses of Input A.
Integration = P × α

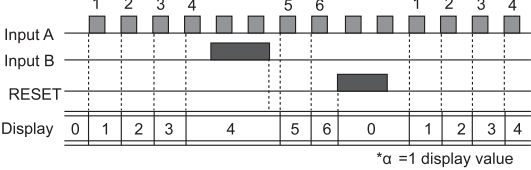
※P : Pulse number of input A, α : Prescale value
※ Max. counting speed: 50kcps (same as max. respond speed)

●Display value and display unit

Display value	Display unit
Integration	Quantity[EA]

●Operation and Time chart

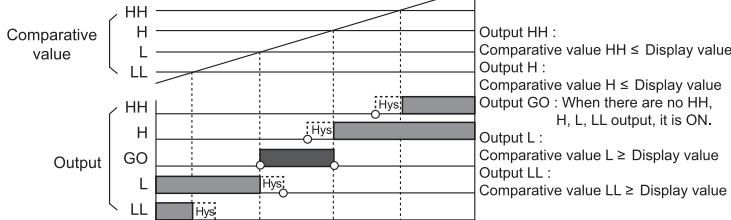
- ① It counts the number of input A pulse.
② As input B is an enable input signal it stops the counting and display value of input A when it is ON and then it counts input A continuously when it is OFF.



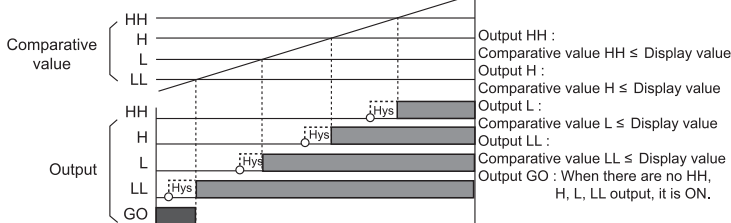
Output mode

- Select output mode in **out-t**(output type) of Parameter1 group.
- There are 5 stages output(HH, H, GO, L, LL) and 3 stage output(H, GO, L).
- There are 6 kinds of output mode such as S(Standard) output mode, H(High) output mode, L(Low) output mode, B(Block) output mode, I(One shot)output mode, F(Deflection)output mode.
- Comparative value(HH, H, L, LL) can be set as LL<L<H<HH in B output mode and the other outputs can be operated separately in output(S, H, L, I) mode regardless of comparative (HH, H, L, LL) set value

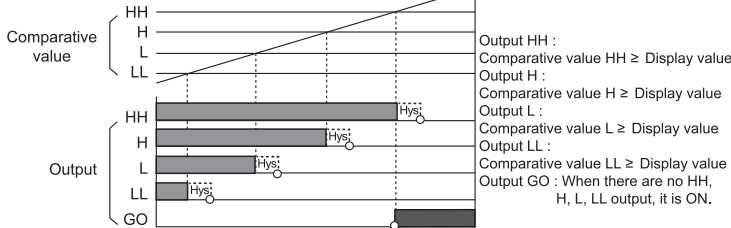
● S(Standard) output mode[5tAr-d]



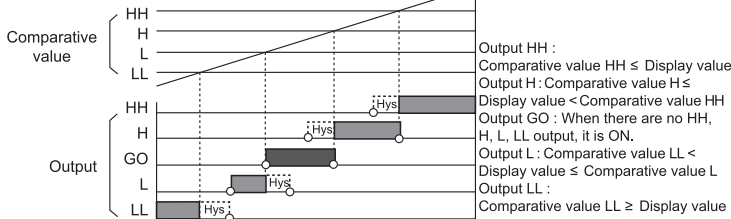
● H(High) output mode[out-h]



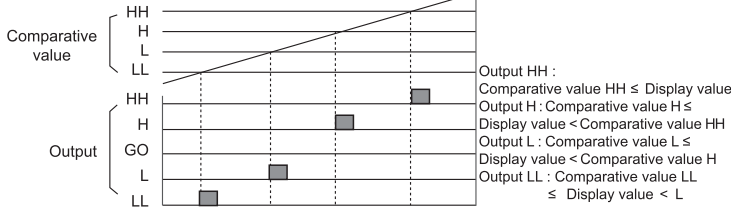
● L(Low) output mode[out-L]



● B(Block) output mode[out-b]



● I(One Shot) output mode[out-I]

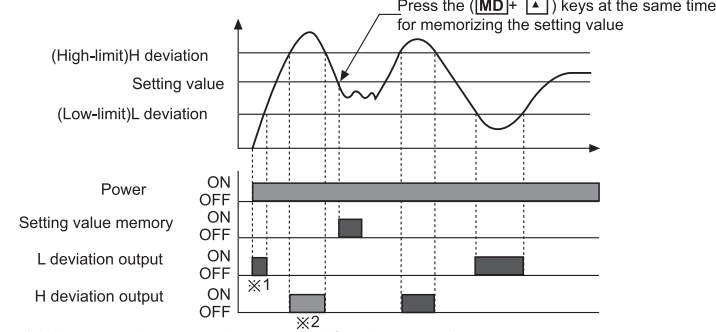


※There is no GO output in output I mode.
※One Shot(■) output time has been fixed 0.3sec.
※There is no Hysteresis in I(One shot) comparative output mode.

F(Deflection) output mode[out-F]

This function is to memorize the setting value and provide outputs when it exceeds the deviation of H, L.

- The setting value memory : Memorize the current display value as the setting value by pressing the front (**MD**+**▲**) keys at the same time.
- Display the setting value : Check the memorized the setting value by the (**▲**) key. (Display the memorized setting value for pressing the **▲** key continuously.)
- Deviation setting : Set H deviation [P5t-h], L deviation[P5t-L], by setting value. (The set deviation is memorized until set the next deviation again when power off.)
- Deviation setting range : 0.0001 to 99999(The setting range is changed by decimal point setting parameter. If set decimal point as 0000.0, the setting range is 0.1 to 9999.9.)
- Operation : Display value ≤ L deviation SV → L deviation output ON, Display value ≤ H deviation SV → H deviation output ON.



- ※1: When select the comparative output limit function, output does not come.
※2: Output position may different from above graph as output coming under assuming the setting value memory is before the setting value memory point on above graph.
※There are no HH, GO, LL outputs in F output mode.
※Even thought you set the deviation as "0(Zero)", it works as setting "1".

Operation chart by each Parameter group

- The display parameter are different by each operation mode, please see "a Parameter".
- ①** : When select the operation mode, the parameter is displayed.
X : When select the operation mode, the parameter is not displayed.

●Parameter 0 group

Parameter	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13
P5t.hh	●	●	●	●	●	●	●	●	●	●	●	●	●
P5t-h	●	●	●	●	●	●	●	●	●	●	●	●	●
P5t-L	●	●	●	●	●	●	●	●	●	●	●	●	●
P5t.LL	●	●	●	●	●	●	●	●	●	●	●	●	●
hPEt	●	●	●	●	●	●	●	●	●	●	●	●	X
LPEt	●	●	●	●	●	●	●	●	●	●	●	●	X

●Parameter 1 group

Parameter	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13
nodE	●	●	●	●	●	●	●	●	●	●	●	●	●
I n-A	●	●	●	●	●	●	●	●	●	●	●	●	●
I n-b	X	●	X	X	X	●	●	●	●	●	○	○	○
oUt-t	●	●	●	●	●	●	●	●	●	●	●	●	X
hYS	●	X	X	X	X	X	●	●	●	●	●	X	X
GuAr-d ↔ FdEFY	●	●	●	●	●	●	●	●	●	●	●	●	X
GuAr-d ↔ 5tAr-t	●	●	●	●	●	●	●	●	●	●	●	●	X
Ruto.a	●	X	X	●	X	X	●	●	●	●	●	X	X
Ruto.ab	X	X	X	X	X	X	●	●	●	●	●	X	X
ñEño	X	X	X	X	X	X	X	X	X	X	X	X	●

※"a" : IN-b sensor is set as nPn, h, F or PnP, h, F in mode F11, F12, F13.

●Parameter 2 group

Parameter	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13
P.bAnE	●	●	●	●	●	●	●	●	●	●	●	●	●
dot	●	●	X	X	X	X	●	●	●	●	●	●	●
t.onE	X	X	●	●	●	●	X	X	X	X	X	X	X
P5t.hh	●	●	●	●	●	●	●	●	●	●	●	●	●
P5t-h	●	●	●	●	●	●	●	●	●	●	●	●	●
P5t-L	●	●	●	●	●	●	●	●	●	●	●	●	●
P5t.LL	●	●	●	●	●	●	●	●	●	●	●	●	●
P5CRH*1	●	●	X	●	X	X	●	●	●	●	●	●	●
P5CRY*1	●	●	X	●	X	X	●	●	●	●	●	●	●
P5CbH	X	X	X	X	X	X	●	●	●	●	X	X	X
P5CbY	X	X	X	X	X	X	●	●	●	●	X	X	X
dt 5P-t	●	X	X	X	X	X	●	●	●	●	●	X	X

※1:P5C-H, P5C-Y are displayed in mode F1, F2, F4, F11, F12, F13.

●Parameter 3 group

Parameter	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	F13
F5-h	Operates all operation modes (F1 to F13)												
F5-L	(PV transmission output)												
Rddr	Operates all operation modes (F1 to F13)												
bP5	(RS485 communication output)												
rEñot													
LoE	●	●	●	●	●	●	●	●	●	●	●	●	●

●Monitoring delay function operation chart by each output mode

out-t	5tAr-d	out-h	out-L	out-b	out-I	out-F
Comparative output adjustment function.	●	X	X	●	X	●
Starting correction timer function	●	●	●	●	●	●

Parameter

●Parameter 0 group

Menu and Parameter display	Parameter	Setting range	Setting key
MD Touch MD Touch ×1	P5t.hh MD → P5t.hh ← 99999	Set HH comparative value	●F1, F2, F7, F9, F11, F12, F13 : 0 to 99999 ●F3 to F6 : 0 to Setting time range ●F8, F10 : -19999 to 99999
MD MD Touch ×1	P5t-h MD → P5t-h ← 99999	Set H comparative value	
MD MD Touch ×1	P5t-L MD → P5t-L ← 00000	Set L comparative value	
MD MD Touch ×1	P5t.LL MD → P5t.LL ← 00000	Set LL comparative value	
MD MD Touch ×1	hPEt MD → hPEt ← 99999	Displays high peak value among measuring values	●Reset If you press the ◀ key for 2sec, while hPEt or LPEt flashes, the Peak value display is reset to the current measuring value and it flashes continually. If you touch the MD key once again, it returns to LPEt or RUN .
MD MD Touch ×1	LPEt MD → LPEt ← -19999	Displays low peak value among measuring values	

※1: If pressing the **MD**key in **RUN** mode, it enters into **P5t.hh**(F output mode:**P5t-h**) at comparative output mode and **hPEt** at indication type.

※When entering into parameter 0, the parameter and data flash by 1 sec, then moving the setting digit and changing the setting value are available.

※It displays the set data to flash by 1sec., then move to next Parameter with touching the **MD** key once.

●Parameter 1 group

Menu and Parameter display	Parameter	Setting range	Setting key
MD press 3sec. MD MD Touch	PAR-R.1 MD → PAR-R.1 ← After displaying PAR-R.1 for 2sec, then advance to nodE automatically. Pressing the MD key before 1sec. it moves to nodE.	This is parameter 1 group.	
MD MD Touch	nodE MD → nodE ← F 1	Select operation mode.	▼, ▲ : Changes the setting mode → F1 → F2 to F13 MD : Fixes and moves to the next parameter
MD MD Touch	I n-A MD → I n-A ← nPn.hF	Set the sensor type of input A.	● PNP transistor output type : PnP.hF ● Contact output type(L output) : PnP.LF ● NPN transistor output type : nPn.hF ● Contact output type(H output) : nPn.LF
MD MD Touch	I n-b MD → I n-b ← nPn.hF	Set the sensor type of input B.	
MD MD Touch	out-t MD → out-t ← 5tAr-d	Select the output mode. (※1)	▼, ▲ : Changes the setting mode → 5tAr-d → out-h → out-L out-F ← out-I ← out-b MD : Fixes and moves to the next parameter
MD MD Touch	hYS MD → hYS ← 0001	Set the hysteresis for the output. (※2)	▼, ▲ : Changes the setting digit ▼, ▲ : Changes the setting value MD : Fixes and moves to the next parameter
MD MD Touch	GuAr-d MD → GuAr-d ← FdEFY ▲ ▼ MD → GuAr-d ← 5tAr-t MD → 5tAr-t ← 99.9	Select the start compensating timer function or comparative output(L, LL) limit function. (※3)	① ▼, ▲ : Changes the setting mode → FdEFY → 5tAr-t MD : Fixes and moves to the next parameter ② ▼, ▲ : Moves the setting digit ▼, ▲ : Changes the setting value MD : Fixes and moves to the next parameter
MD MD Touch	Ruto.A MD → Ruto.A ← 9999.9	Set the Auto-zero time of INA input.	▼, ▲ : Moves the setting digit ▼, ▲ : Changes the setting value MD : Fixes and moves to the next parameter
MD MD Touch	Ruto.b MD → Ruto.b ← 9999.9	Set the Auto-zero of INB input.	▼, ▲ : Moves the setting digit ▼, ▲ : Changes the setting value MD : Fixes and moves to the next parameter
MD MD Touch	ñEño MD → ñEño ← oFF	It sets the memory retention. The measuring value is memorized when the power off. (Mode F13 only)	▼, ▲ : Changes the setting mode MD : Fixes and moves to the next parameter nodE . → oFF → on

※If pressing the **MD** key for 3 sec. in **RUN**, it enters into parameter 1 group.

※1: It is not be displayed in indication type.

The output mode is fixed as **out-h** type in F13 operation mode.

※2: Hysteresis operation mode is able to be set in F1, F7 to F10 operation mode.

※3: You are able to select the comparative output limit[**FdEFY**] limit function or starting correction[**5tAr-t**] timer in monitoring delay function mode.

When selecting the comparative output limit[**FdEFY**] function, it moves to the next parameter[**Ruto.A**] and when selecting the starting correction timer[**5tAr-t**] you need to be set the starting correction time[**0.0** to **99.9**] so that it moves to the next parameter[**Ruto.A**].

※If pressing the **MD** key for over 2 sec. in every setting mode, data is set and returned to **RUN**.

※When entering into parameter 1 group, the parameter name and data flash by 1 sec. then move setting digit by the **◀** key or change the setting value by **▼ ▲** key.

※All data set by users are displayed to 1sec. it moves to the next parameter by pressing the **MD** key.

