

# 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

- In case of using this unit with machineries(Nuclear power control, medical equipment, vehicle, train, airplane, combustion apparatus, entertainment or safety device etc), it requires installing fail-safe device, or contact us for information on type required.**  
It may result in serious damage, fire or human injury.
- It must be mounted on panel.**  
It may give an electric shock.
- Do not repair or check up when power on.**  
It may give an electric shock.
- 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.
- Please check the number of terminal when connect power line or measuring input.**  
It may cause a fire.

### Caution

- This unit shall not be used outdoors.**  
It might shorten the life cycle of the product or give an electric shock.
- 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.
- Please observe specification rating.**  
It might shorten the life cycle of the product and cause a fire.
- 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.
- 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.
- 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.
- Do not inflow dust or wire dregs into inside of this unit.**  
It may cause a fire or mechanical trouble.
- Please connect properly after checking the polarity of measuring terminals.**  
It may cause a fire or explosion.

※The above specification are changeable without notice anytime.

### Ordering information

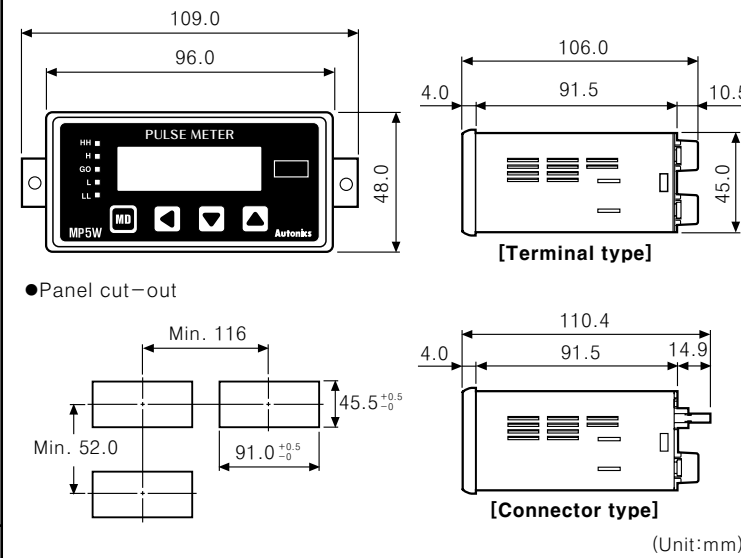
①Series	MP	Pulse meter
②Digit	5	5Digit(99999)
③Size	W	DIN Size W96 × H48mm
④Power supply	4	100-240VAC 50/60Hz
Symbol	Main output(Comparative value output)	Sub output(Display value output)
N	Indication type only	X
A	Relay five-stage(HH, H, GO, L, LL)	X
1	Relay three-stage(H, GO, L)	X
2	NPN open collector five-stage output	BCD Dynamic output
3	PNP open collector five-stage output	BCD Dynamic output
4	NPN open collector five-stage output	PV retransmission(4-20mADC) output
5	PNP open collector five-stage output	PV retransmission(4-20mADC) output
6	NPN open collector five-stage output	Low speed serial output
7	PNP open collector five-stage output	Low speed serial output
8	NPN open collector five-stage output	RS485 communication output
9	PNP open collector five-stage output	RS485 communication output

※PNP open collector output:Option

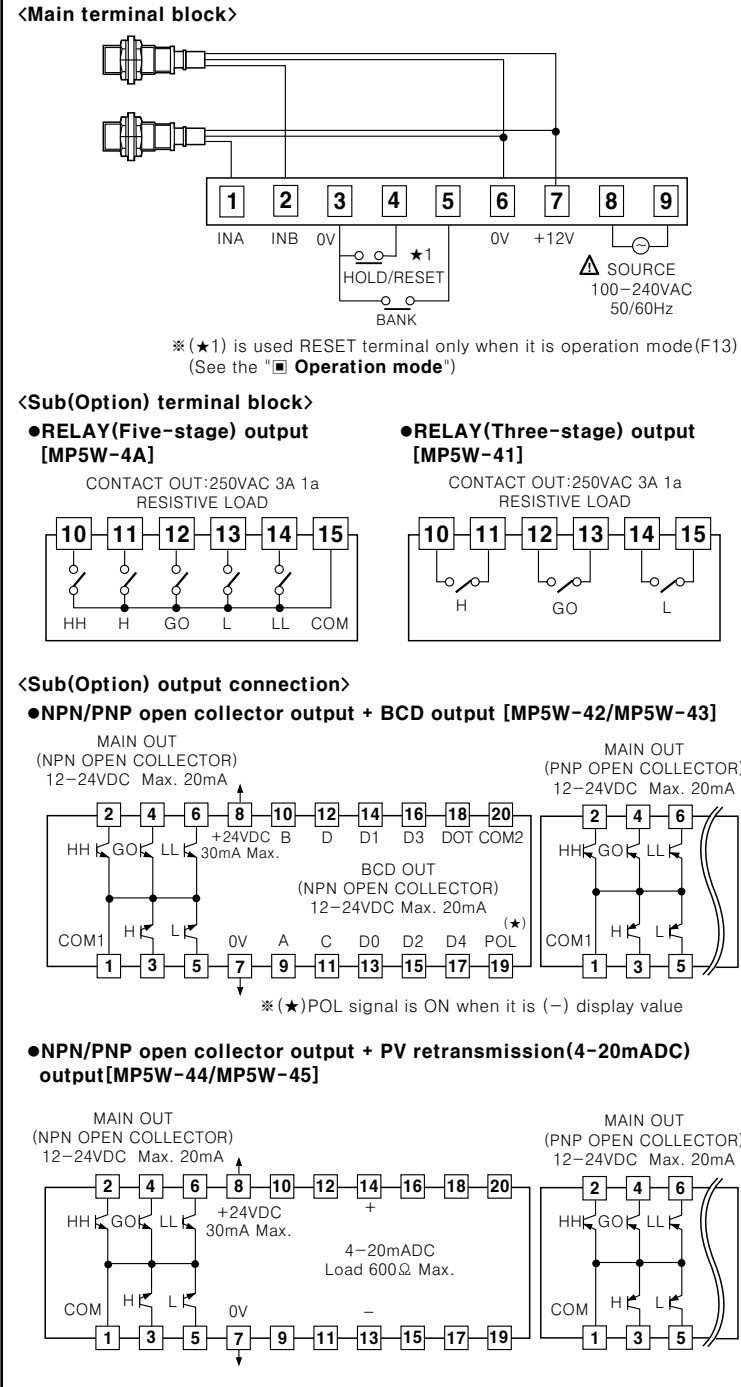
### Specifications

Model	MP5W
Power supply	100-240VAC 50/60Hz
Allowable voltage range	90 to 110% of rated voltage
Power consumption	Approx. Max. 6VA
Power for external sensor	12VDC ±10%, 80mA
Measuring accuracy (23 ±5°C)	<ul style="list-style-type: none"> <li>Mode F1, F4, F7, F8, F9, F10 : F.S. ±0.05% rdg ±1Digit</li> <li>Mode F2, F3, F5, F6 : F.S. ±0.01% rdg ±1Digit</li> </ul>
Measuring range	<ul style="list-style-type: none"> <li>Mode F1, F4, F7, F8, F9, F10 : 0.0005Hz to 50kHz</li> <li>Mode F3 : 0.02s to 3,200s</li> <li>Mode F2, F5, F6 : 0.01s to 3,200s</li> <li>Mode F11, F12, F13 : 0 to 4 × 10<sup>9</sup> Count</li> </ul>
Input frequency	<ul style="list-style-type: none"> <li>Solid state input : Max. 50kHz(Pulse width:Min. 10μs)</li> <li>Contact input : Max. 45Hz(Pulse width:Min. 11ms)</li> </ul>
Input level	[Voltage input] High : 4.5-24VDC, Low : 0-1VDC, Input impedance : 4.5kΩ [No-voltage input] Short-circuit impedance : Max. 300Ω, Residual voltage : Max. 1V, Open-circuit impedance : Min. 100kΩ
Max. indication	5digit(-19999 to 99999)
Display method	7 Segment LED(Zero Blanking)
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 time(F2), Cycle(F3), Passing speed(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(0.0001 × 10 <sup>-9</sup> to 9.9999 × 10 <sup>9</sup> )
Hysteresis	0 to 9999
Other functions	<ul style="list-style-type: none"> <li>Lock setting function</li> <li>Auto-Zero time setting function</li> <li>Monitoring delay function</li> <li>Monitoring function : Memorize max. value or min. value</li> <li>Current output range selection(Current output type only)</li> <li>Remote/Local switching function(Communication output type only)</li> <li>Comparative output function(HH, H, GO, L, LL)</li> <li>Data Bank switching function</li> <li>Time unit selection function</li> <li>Memory retention function(Mode F13 applied only)</li> <li>Deviation memory function(F output mode applied only)</li> </ul> ※Please see the last page for the detail.
Output form	<ul style="list-style-type: none"> <li>Relay contact output(Three-stage output:3a)(Five-stage output:5a contact):Comparative output, Alarm output</li> <li>Transistor output(NPN/PNP open collector)</li> <li>Comparative output, Alarm output</li> <li>Low speed serial output:Display value output</li> <li>BCD Dynamic output:Display value output</li> <li>PV retransmission output(4-20mADC):Display value output</li> <li>RS485 communication output(32 channel)</li> <li>Display value output, Comparative output, PC setting function</li> </ul>
Memory	Non-volatile memory(Input times : 100,000 times)
Insulation resistance	Min. 100MΩ(Standard 500VDC) between terminal and case
Dielectric strength	2000VAC 60Hz 1minute(Between terminals of AC power and case, Between terminals of AC power and measuring terminals)
Impulse noise strength	±2000V 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 2 hour Malfunction : 0.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 10 minutes
Shock	Mechanical : 300m/s <sup>2</sup> (Approx. 30G) 3 times at X, Y, Z direction Malfunction : 100m/s <sup>2</sup> (Approx. 10G) 3 times at X, Y, Z direction
Relay life cycle	Min.10,000,000 times
Electrical life cycle	Min.100,000 times(250VAC 3A resistive load)
Ambient temperature	-10 to 50°C(at non-freezing status)[]
Storage temperature	-20 to 60°C(at non-freezing status)[]
Ambient humidity	35 to 85%RH
Weight	Approx. 230g

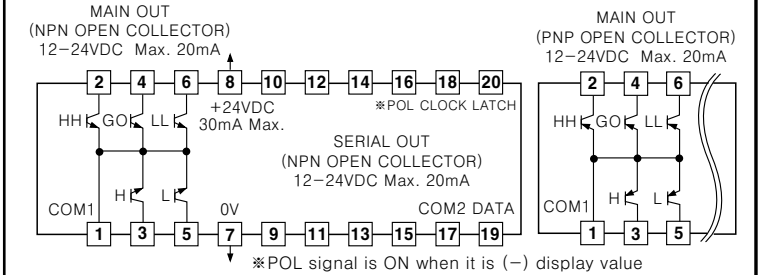
### Dimensions



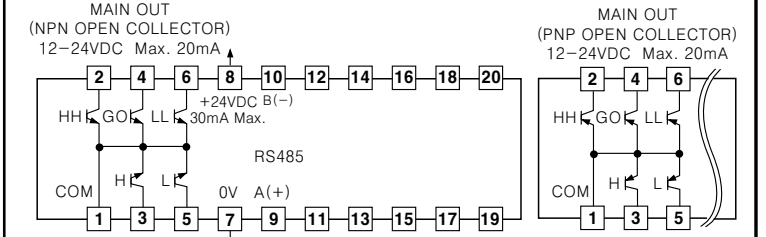
### Connections



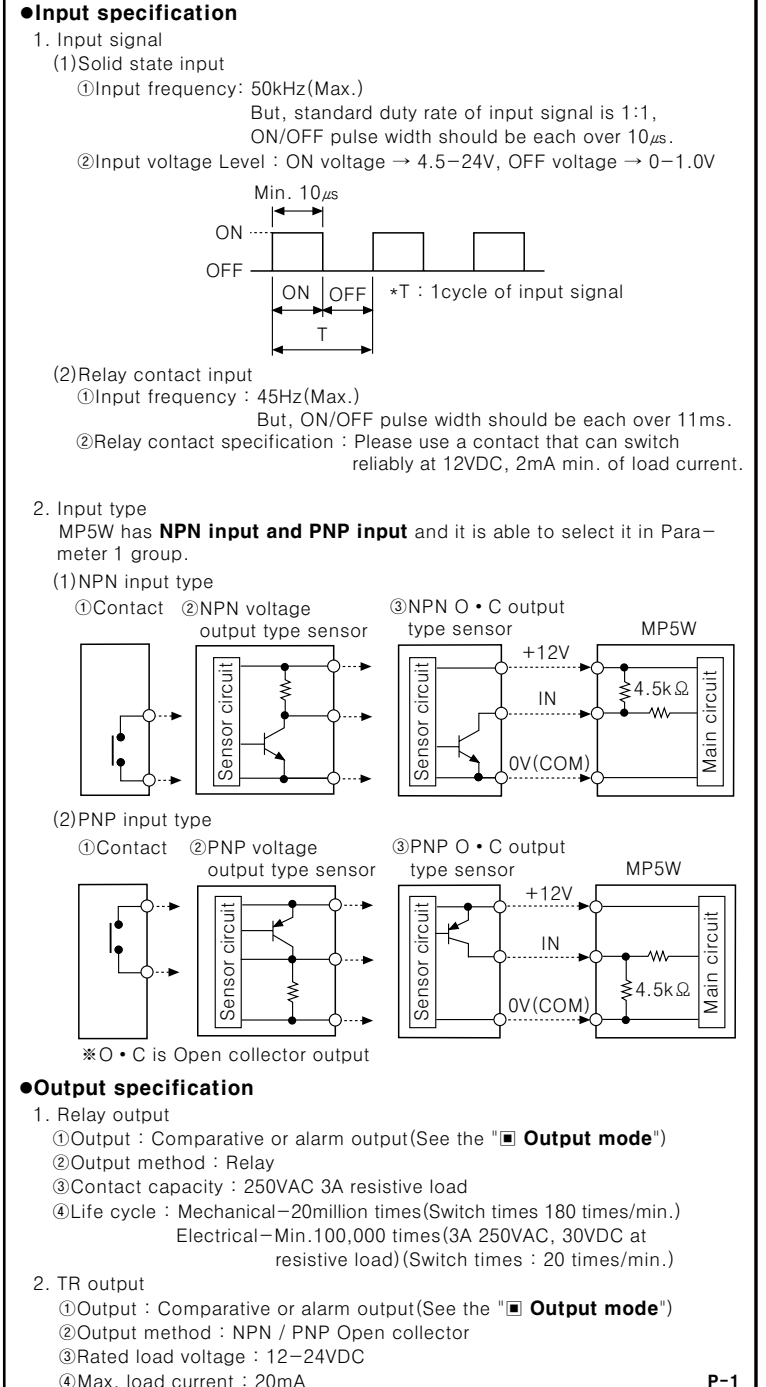
### NPN/PNP open collector output + Low speed serial output [MP5W-46/MP5W-47]



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

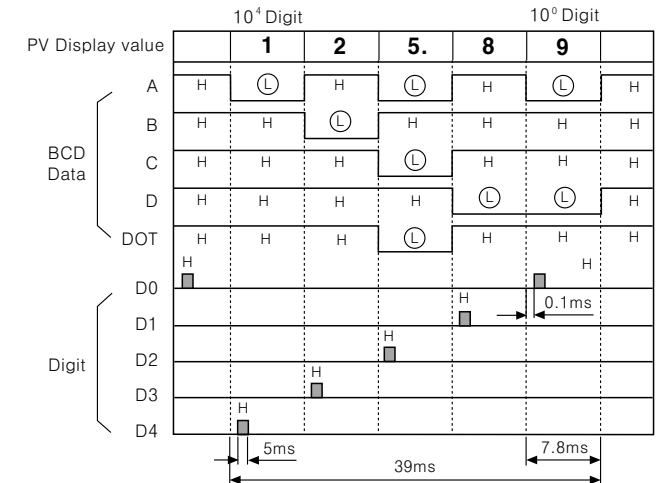


### Input · Output



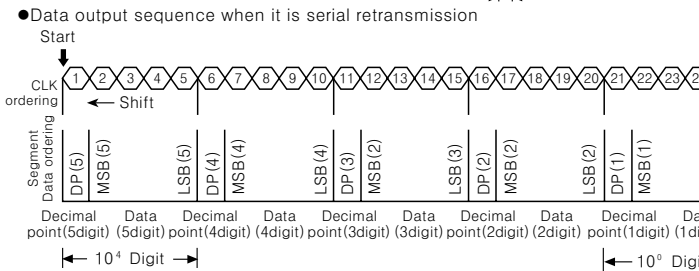
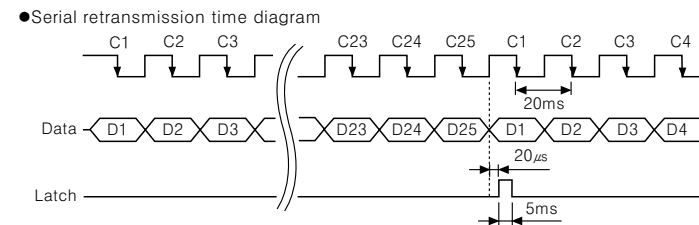
3. BCD Dynamic output

- ①Output : Display value
- ②Output signal : BCD Data(A, B, C, D) ← A : Lowest bit, D : 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



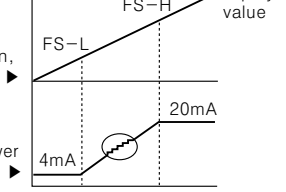
4. Low speed serial output

- ①Output : Display value
- ②Output signal : CLK, Data, Latch
- ③CLK 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



5. PV retransmission output(4-20mADC)

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



- 6. RS485 communication output
  - ①Address : 0 ~ 99 address(32 channel)
  - ②Retransmission speed(Baud rate) : 2400/4800/9600 bps
  - ③Retransmission 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

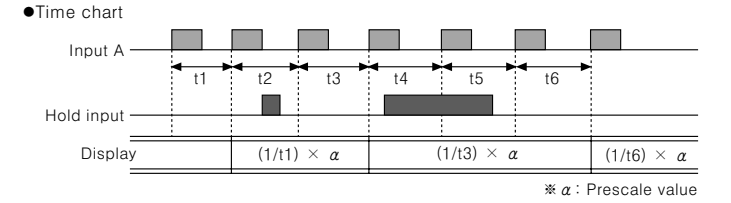
- Select operation mode from **mode**(mode) of Parameter 1 group.
- There are 13 kinds of operation mode in this unit.

● **Mode F1(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) =  $f \times \alpha$  ( $\alpha = 1[\text{sec}]$ )  
2) Number of revolution(rpm) =  $f \times \alpha$  ( $\alpha = 60[\text{sec}]$ )  
3) Speed(m/min) =  $f \times \alpha$  ( $\alpha = 60L[\text{sec}]$ )  
\* L = The length of conveyor moved for 1 pulse cycle[m]

● Display value and display unit

Display value	Display unit	$\alpha$ (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

\* Display unit of factory default : rpm

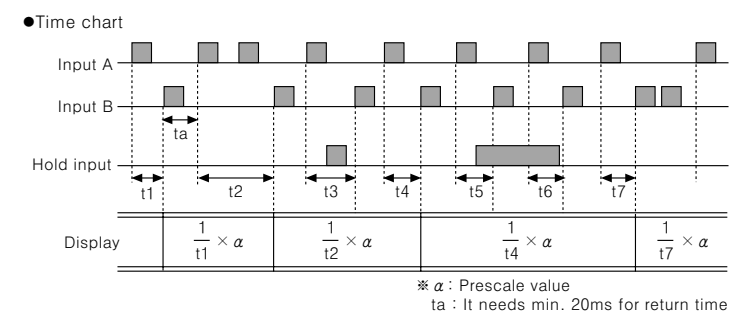


● **Mode F2(Passing speed)**  
It displays the passing speed between ON of input A and ON of input B.  
Passing speed(V) =  $f \times \alpha$  ( $\alpha = L[\text{m}]$ )  
\* f : This is reciprocal number of the time between ON of input A and ON of input B  
L : The distance between input A and input B[m]

● Display value and display unit

Display value	Display unit	$\alpha$ (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

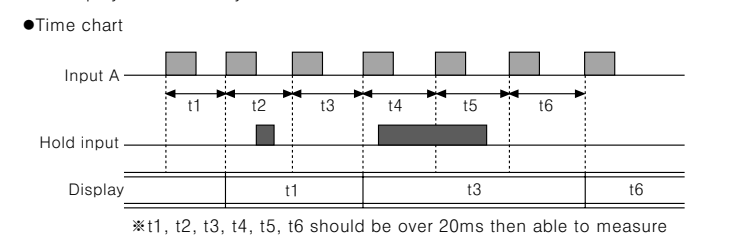


● **Mode F3(Cycle)**  
It displays the time from when input A is ON to the next ON of input A.  
Cycle(T) = t  
\* t : Measurement time[sec]

● Display value and display unit

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

\* Set the display unit at the **Unit**(Time unit) of Parameter 2.  
\* Display unit of factory default : 999.99sec.



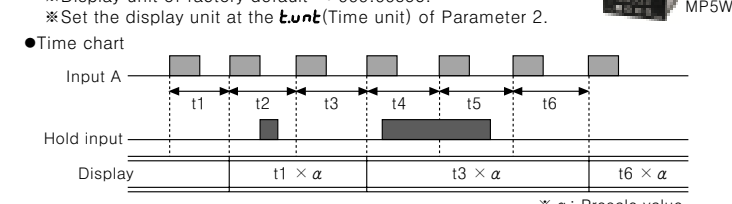
Mode F4(Passing time)

It displays the passing time of certain distance as measuring the time between ON and the next ON of Input A.  
Passing time[sec] =  $t \times \alpha$  ( $\alpha = \frac{L[\text{m}]}{\text{Moving distance within 1 pulse cycle}[\text{m}]}$ )

● Display value and display unit

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

\* t : Measurement time[sec]  
L : Certain distance[m]

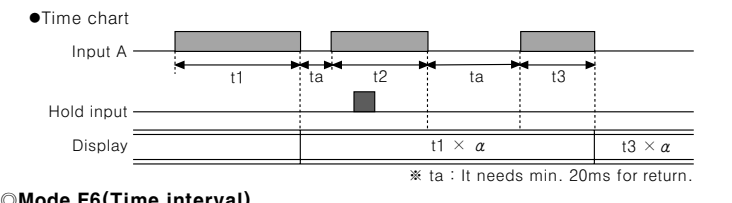


● **Mode F5(Time width)**  
It displays the ON time of input A.  
Time width[T] = t  
\* t : ON measurement time of input A[sec]

● Display value and display unit

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

\* Set the display unit at the **Unit**(Time unit) of parameter 2.  
\* Display unit of factory default : 999.99sec.

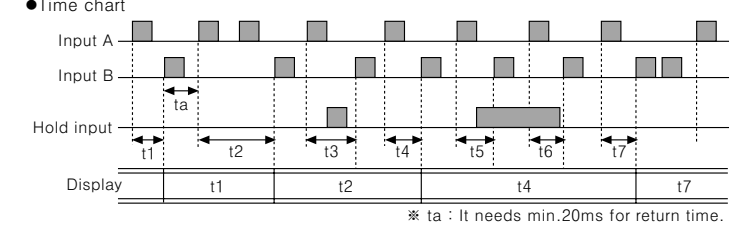


● **Mode F6(Time interval)**  
It displays the time from input A is ON to input B is ON.  
Time difference(T) = t(ta to tb)  
\* t(ta to tb): The measurement time from input A is ON to input B is ON[sec]

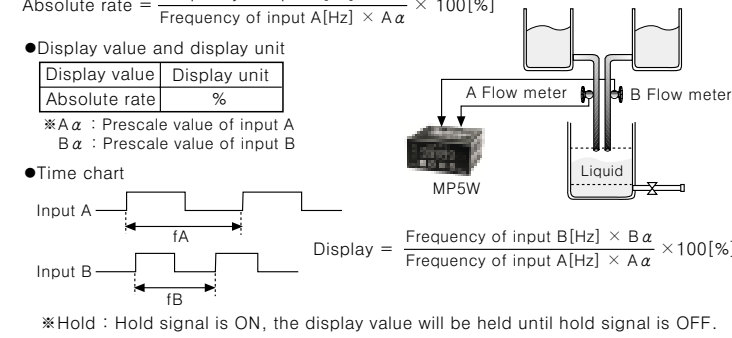
● Display value and display unit

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

\* Display unit of factory default : 999.99sec.  
\* Display unit can be set at **Unit**(Time unit) of Parameter 2.

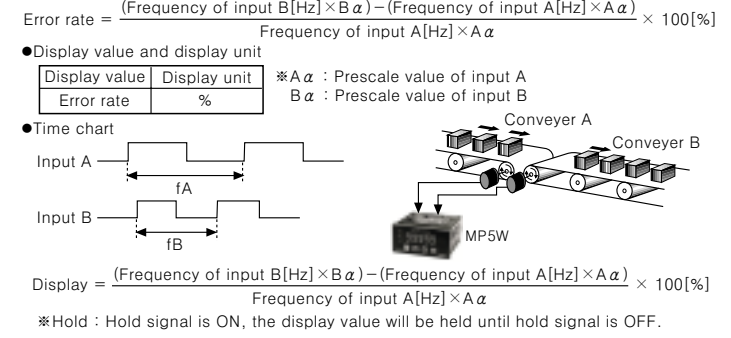


● **Mode F7(Absolute rate)**  
It displays how many percentage(%) faster or late, speed, volume etc. of Input B against input A  
Absolute rate =  $(\text{Input B} / \text{Input A}) \times 100\%$   
Absolute rate =  $\frac{\text{Frequency of input B}[\text{Hz}] \times B\alpha}{\text{Frequency of input A}[\text{Hz}] \times A\alpha} \times 100\%$

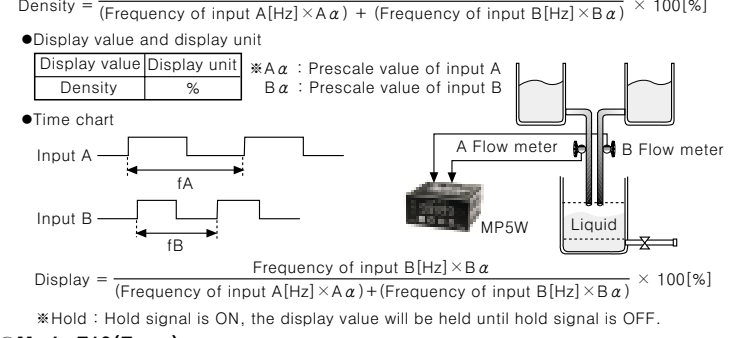


Mode F8(Error ratio)

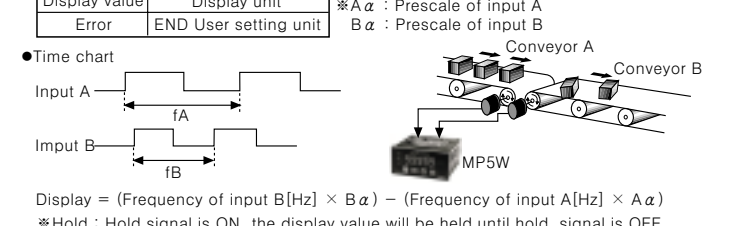
It displays how many percentage(%) faster or late of Input B against Input A.  
Absolute rate =  $\frac{\text{Input B} - \text{Input A}}{\text{Input A}} \times 100\%$   
Error rate =  $\frac{(\text{Frequency of input B}[\text{Hz}] \times B\alpha) - (\text{Frequency of input A}[\text{Hz}] \times A\alpha)}{\text{Frequency of input A}[\text{Hz}] \times A\alpha} \times 100\%$



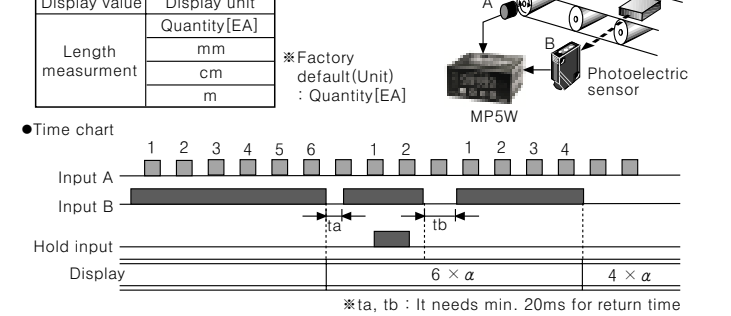
● **Mode F9(Density)**  
It displays the density rate of input B against total sum of input A and input B.  
Density =  $\frac{\text{Input B}}{\text{Input A} + \text{Input B}} \times 100\%$   
Density =  $\frac{\text{Frequency of input B}[\text{Hz}] \times B\alpha}{(\text{Frequency of input A}[\text{Hz}] \times A\alpha) + (\text{Frequency of input B}[\text{Hz}] \times B\alpha)} \times 100\%$



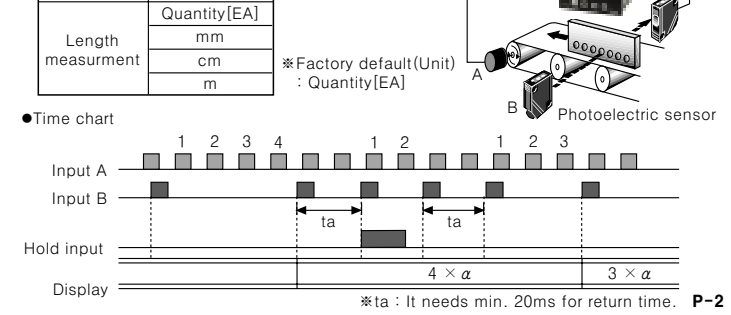
● **Mode F10(Error)**  
It displays the error between standard Input A and comparing Input B.  
Error = Input B - Input A  
Error =  $(\text{Frequency of input B}[\text{Hz}] \times B\alpha) - (\text{Frequency of input A}[\text{Hz}] \times A\alpha)$



● **Mode F11(Length measurement)**  
It displays the number of Input A pulse while Input B is ON.  
Length measurement =  $P \times \alpha$  (\* P : Number of input A pulse,  $\alpha$  : Prescale value)



● **Mode F12(Interval)**  
It displays the number of Input A pulse from Input B is ON to the time Input B is ON next.  
Interval =  $P \times \alpha$  (\* P : Number of input A pulse,  $\alpha$  : Prescale value)





### Parameter 2 group

Menu and Parameter display	Parameter	Setting range	Setting key
<p>After displaying <b>PAR-R2</b> for 2sec. then advance to <b>PbAnL</b> automatically. Pressing <b>MD</b> key before 1sec. it will move to <b>PbAnL</b>.</p> <p><b>PAR-R2</b> → <b>PbAnL</b> → <b>PbAnL</b> → <b>dot</b> → <b>t.unL</b> → <b>t.SEC</b> → <b>t.nIn</b></p>	This is parameter 2 group.		
<p>Select Data bank.</p> <p><b>1</b> : Data bank 1 <b>2</b> : Data bank 2</p>			↓, ↑ : Change the setting value MD : Fix and move to the next parameter
<p>Set decimal point position of display value</p> <p><b>00000</b> <b>00.000</b> <b>00000</b> <b>0.0000</b> <b>00000</b> <b>0.0000</b></p>			← : Move the decimal point MD : Fix and move to the next parameter
<p>It will be displayed in F3, F4, F5, F6 operation mode and set the time unit. (★1)</p> <p>① Select the time unit ② Select the time range</p> <p><b>SEC</b>    <b>MIN</b> 999.99sec. 999.99min. 9999.9sec. 9999.9min. 99min.59.9sec. 99hour59.9min. 9hour 59min.59sec. 999hour59min. 99999sec. 99999min.</p>			① ↓, ↑ : Change the setting mode MD : Save ② ↓, ↑ : Change the setting value MD : Fix and move to the next parameter
<p>Set the comparative value HH.</p> <p><b>PSt.hh</b> → <b>99999</b></p>			↓, ↑ : Move the setting digit MD : Fix and move to the next parameter
<p>Set the comparative value H.</p> <p><b>PSt.h</b> → <b>99999</b></p>	●F1, F2, F7, F9, F11, F12, F13 : 0 to 99999		↓, ↑ : Move the setting digit MD : Fix and move to the next parameter
<p>Set the comparative value L.</p> <p><b>PSt.L</b> → <b>00000</b></p>	●F3 to F6 : 0 to Setting time range		↓, ↑ : Change the setting value MD : Fix and move to the next parameter
<p>Set the comparative value LL.</p> <p><b>PSt.LL</b> → <b>00000</b></p>	●F8, F10 : -19999 to 99999		↓, ↑ : Move the setting digit ↓, ↑ : Change the setting value MD : Fix and move to the next parameter
<p>Set the prescale value of input A mantissa(X).</p> <p><b>PSC.RH</b> → <b>1.0000</b></p>		<b>00000</b> to <b>99999</b>	↓, ↑ : Move the setting digit ↓, ↑ : Change the setting value MD : Fix and move to the next parameter
<p>Set the prescale value of input A an exponent(y).</p> <p><b>PSC.RY</b> → <b>10 00</b></p>		<b>10 - 9</b> to <b>10 9</b> (10 <sup>-9</sup> to 10 <sup>9</sup> )	↓, ↑ : Move the setting digit ↓, ↑ : Change the setting value MD : Fix and move to the next parameter
<p>Set the prescale value of input B mantissa(X).</p> <p><b>PSC.bH</b> → <b>1.0000</b></p>		<b>00000</b> to <b>99999</b>	↓, ↑ : Move the setting digit ↓, ↑ : Change the setting value MD : Fix and move to the next parameter
<p>Set the prescale value of input B an exponent(y).</p> <p><b>PSC.bY</b> → <b>10 00</b></p>		<b>10 - 9</b> to <b>10 9</b> (10 <sup>-9</sup> to 10 <sup>9</sup> )	↓, ↑ : Move the setting digit ↓, ↑ : Change the setting value MD : Fix and move to the next parameter
<p>Select the display cycle.</p> <p><b>dI SPt</b> → <b>0.05</b></p>		<b>0.05</b> <b>0.5</b> <b>1</b> <b>2</b> <b>4</b> <b>8</b>	↓, ↑ : Change setting value MD : Fix and move to the next parameter

※ It will enter into parameter 2 if pressing **MD** key for 4sec in **RUN** mode.  
 (★1) It will be displayed in F3, F4, F5, F6 operation mode only and enable to select the time until as sec. [t.SEC] or min. [t.nIn] in t.unL parameter.  
 Select the time range after selecting the time unit as sec. [t.SEC] or min. [t.nIn].  
 ※ If press **MD** key for over 2 sec. in every setting mode, data will be set and return to **RUN**.  
 ※ When enter into the parameter 2 group, the parameter name and data value will flicker by cycle(1sec.). Then to move the setting digit by ← key and change the setting value by ↓, ↑ key.  
 ※ The fixed data value set by user in each parameter will flicker by cycle(1sec.) and move to the next parameter by pressing **MD** key.

### Parameter 3 group

Menu and Parameter display	Parameter	Setting range	Setting key
<p>Display <b>PAR-R3</b> for 2sec. then move to <b>F5-h</b> automatically. Move to <b>F5-h</b>, if press <b>MD</b> key before 1sec.</p> <p><b>PAR-R3</b> → <b>F5-h</b> → <b>F5-L</b> → <b>Addr</b> → <b>bPS</b> → <b>rEnot</b> → <b>LoC</b></p>	This is parameter 3 group.		
<p>Set the High-limit value of PV retransmission output.</p> <p><b>F5-h</b> → <b>99999</b></p>	●F1, F2, F7, F9, F11, F12, F13 : 0 to 99999 ●F3, F6 : 0 to Setting time range ●F8, F10 : -19999 to 99999		↓, ↑ : Move the setting digit ↓, ↑ : Change the setting value MD : Fix and move to the next parameter
<p>Set the Low-limit value of PV retransmission output.</p> <p><b>F5-L</b> → <b>00000</b></p>			↓, ↑ : Move the setting digit ↓, ↑ : Change the setting value MD : Fix and move to the next parameter
<p>Set the communication Address.</p> <p><b>Addr</b> → <b>00</b></p>		<b>00</b> to <b>99</b> (32 channel)	↓, ↑ : Move the setting digit ↓, ↑ : Change the setting value MD : Fix and move to the next parameter
<p>Select the communication speed.</p> <p><b>bPS</b> → <b>2400</b></p>		<b>2400 / 4800 / 9600</b>	↓, ↑ : Change the setting mode MD : Fix and move to the next parameter
<p>Select the Remote and the Local. (★1)</p> <p><b>rEnot</b> → <b>oFF</b></p>	on : Use oFF : Not use		↓, ↑ : Change the setting mode MD : Fix and move to the next parameter
<p>Enable to lock the key for each parameter group</p> <p><b>LoC</b> → <b>oFF</b></p>	oFF : There is no key lock in all mode LoC.0 : P0 - 3 Lock LoC.1 : P1 - 3 Lock LoC.2 : P2 - 3 Lock LoC.3 : P3 Lock only		↓, ↑ : Change the setting mode MD : Fix and move to the next parameter

※ It will enter into parameter 3 if pressing **MD** key for 5sec. in **RUN** mode.  
 (★1) It is enable to set the remote or local function in communication output type. When select the remote [rEnot] function, the front keys are disabled.  
 (★2) Pressing **MD** key at parameter 3, it will enter into **F5-h** or **Addr** (option function). **LoC** (Indication type only).  
 ※ If press **MD** key for over 2 sec. in every setting mode, data will be set and return to **RUN**.  
 ※ When entering into the parameter 3 group, the parameter name and data value will flicker by cycle(1sec.). Then move the setting digit by ← key and change the setting value by ↓, ↑ key.  
 ※ The fixed data value by user in each parameter will flicker by cycle(1sec.) and move to the next parameter by pressing **MD** key.

### Function

#### Prescale function

This prescale function allows you to multiply the number of pulse or pulse length by a variable (X × 10<sup>Y</sup>) then display a specific unit or a certain double number. It will display frequency or RPM from prescale value (α) by measuring the input A frequency. For example, the prescale value when need to display the RPM as below.



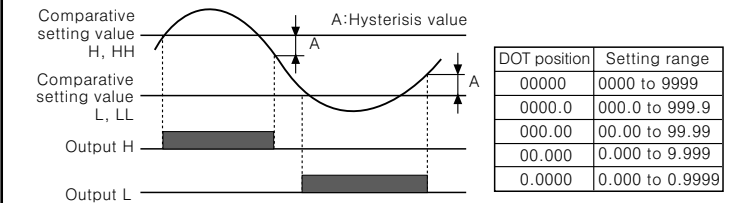
How to set prescale value (α = 15)  
 Set prescale value separating as a mantissa (X) and an exponent (Y) at **PSC.RH**, **PSC.RY** (or **PSC.bH**, **PSC.bY**). For example, prescale value (α) = 15, a mantissa (X) : 1.5000, an exponent (Y) : 01. Or if set α value as **PSC.RH** = 0.1500, **PSC.RY** = 02 then also get the same display value.

#### Monitoring function

This function is to save High Peak value (hPEV) or Low Peak value (LPEV) against display value.  
 ● User can check saved value in Parameter 0 group. And High Peak value (hPEV) or Low Peak value (LPEV) will be continuously saved during checking.  
 ● See Parameter 0 for Reset.

#### Hysteresis delay function

Set the Hysteresis value (A) for comparative setting value in order to prevent unstable operation due to output going ON/OFF frequently.

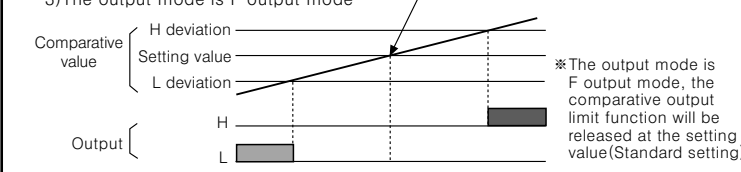
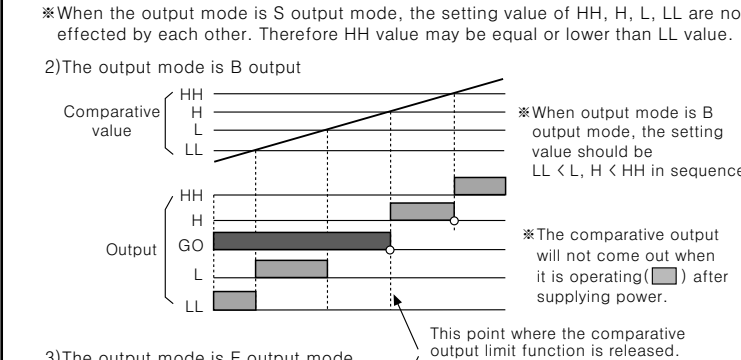
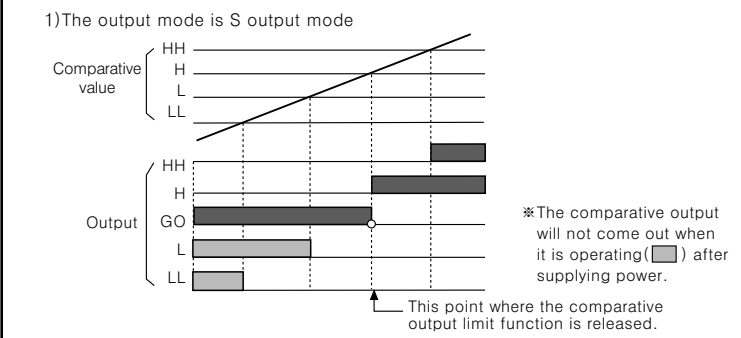


※ You are able to set "0", but when set "0", the actual operation will be as "1".  
 ※ The initial setting value is 0001.  
 ※ You are able to set in the Parameter 1 group.

#### Monitoring function

This function is for the stable control to limit L, LL outputs until certain output is come or to limit all outputs while the equipment is reaching a stable status against various change of input such as the starting current when the motor is running after power on. There are the starting correction timer function and comparative output limit function in the monitoring delay function.

● The starting correction timer function  
 This function is to make the output not come out during the setting time. (Time setting range 0.0 to 99.9sec.)  
 ● Comparative output limit function (LL, L output limit function)  
 Applicable output mode: S, B, F mode (See "Output mode")  
 This function is to limit the LL, L output before H or HH output.



#### Auto-Zero time setting function

When you know the interval of input signal, Auto-zero time should be set as a little bit longer than that interval of input signal. If there is no pulse input within setting time (Auto-zero time), it regards as the input signal is cut off then make the value as "00000" forcibly. Note that the Auto-zero time setting should be longer than the narrowest interval of input pulse. Otherwise it may be difficult to make the display value as "00000".

● Auto-zero time setting range (0.1 to 9999.9sec)  
 ● When the display value is "00000", each output will respond to how it was programmed for "0".

#### Lock setting function

This function is to set the enable or disable of each Parameter and mode changes in MP5W.

● Off : No lock function  
 ● LoC 0 : P0 to P3 Lock (Lock from Parameter 0 to Parameter 3)  
 ● LoC 1 : P1 to P3 Lock (Lock Parameter 1 to Parameter 3)  
 ● LoC 2 : P2 to P3 Lock (Lock Parameter 2 to Parameter 3)  
 ● LoC 3 : P3 Lock (Lock Parameter 3 only)

#### Inner hardware Lock setting function

This function is to lock LoC in Parameter 3 group by Inner hardware Lock function in order to prevent wrong setting.

● h1 (Hardware Lock1) : Enable to check the LoC parameter only in parameter 3 group. But it is not possible to change the parameter.  
 ● h2 (Hardware Lock2) : Disable to check and change the LoC parameter in parameter 3 group.

#### Display cycle selection function

This function is to change the display cycle in range of 0.05/0.5/1/2/4/8 sec., and displays the average value of measuring value for the setting cycle.

#### Time unit selection function

Enable to display PV value with firm time unit in range of various time.  
 ● Time unit selection function can be set in parameter 2 group.  
 ● Applicable mode : Mode 3 to 6  
 ※ There is no DOT setting mode when set the time unit display function.

#### Data Bank switching function

This function is to use the values by switching Data Bank 1, 2 after registering comparative setting value and prescale value into Data Bank1 and Data Bank2.  
 ● When the 3 and 5 terminals are open circuited, the comparative value and prescale of Data Bank 1 will be used.  
 ● When the 3 and 5 terminals are short-circuited, the comparative value and prescale of Data Bank 2 will be used.  
 ● After selecting the Data Bank for saving the comparative setting value and prescale value, set the comparative setting value and prescale value then it will be saved at Data Bank.

#### Factory default

Parameter 3 group		Parameter 2 group		Parameter 1 group	
Mode	Setting value	Mode	Setting value	Mode	Setting value
F5-h	99999	PbAnL	1PStLL 00000	nodE	F1hYS 0001
F5-L	00000	dot	00000 PSt.H 6.000	ln-RnPhFGvRrdFdEFY	out-tStArdrAaA99999
Addr	00	PSt.hh	99999 PSt.Y 10 01		
bPS	2400	PSt.h	99999 dI SPt 005		
rEnot	oFF	PSt.L	00000		
LoC	oFF				

※ The specification may not be displayed due to the operation mode and output specification.

### Caution for using

- Installation environment
  - It shall be used indoor
  - Altitude Max. 2000m
  - Pollution Degree 2
  - Installation Category II.
- Please use separated line from high voltage line or power line in order to avoid inductive noise.
- Please install power switch or circuit breaker in order to cut the power supply.
- The switch or circuit breaker should be installed near by users for safety.
- Do not use this unit at below places.
  - Place where there are severe vibration or impact.
  - Place where there are direct ray of the sun.
  - Place where strong magnetic field or electric noise are generated.
- Storage method  
 When storing this unit for a long time, please avoid the direct ray of the sun and keep this unit under circumstances as -20 to +60°C, 35 to 85RH.
- Input line : Shield wire must be used when the measuring input line is getting longer or there are lots of noises.
  - Using shield with two wires
- Please put enough space between power line and terminal of measuring input.

※ It may cause malfunction if above instructions are not followed.

### Main products

- COUNTER
- TIMER
- TEMPERATURE CONTROLLER
- PANEL METER
- TACHOMETER/ LINE SPEED METER/PULSE METER
- DISPLAY UNIT
- PROXIMITY SENSOR
- PHOTOELECTRIC SENSOR
- FIBER OPTIC SENSOR
- PRESSURE SENSOR
- ROTARY ENCODER
- SENSOR CONTROLLER
- POWER CONTROLLER
- STEPPING MOTOR & DRIVER & CONTROLLER

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NO20030630-EP-E-04-020D