Multi Pulse Meters

MP5S / MP5Y / MP5W Series

INSTRUCTION MANUAL

TCD230028AC

Autonics

Thank you for choosing our Autonics product.
Read and understand the instruction manual and manual thoroughly before using the product.
For your safety, read and follow the below safety considerations before using.
For your safety, read and follow the considerations written in the instruction manual, other manuals and Autonics website.
Keep this instruction manual in a place where you can find easily.
The specifications, dimensions, etc. are subject to change without notice for product improvement. Some models may be discontinued without notice.
Follow Autonics website for the latest information.

Safety Considerations

- Observe all 'Safety Considerations' for safe and proper operation to avoid hazards.
- ⚠ symbol indicates caution due to special circumstances in which hazards may occur.

⚠ Warning Failure to follow instructions may result in serious injury or death.

01. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime / disaster prevention devices, etc.)
Failure to follow this instruction may result in personal injury, economic loss or fire.
02. Do not use the unit in the place where flammable / explosive / corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.
Failure to follow this instruction may result in explosion or fire.
03. Install on a device panel to use.
Failure to follow this instruction may result in fire or electric shock.
04. Do not connect, repair, or inspect the unit while connected to a power source.
Failure to follow this instruction may result in fire or electric shock.
05. Check 'Connections' before wiring.
Failure to follow this instruction may result in fire.
06. Do not disassemble or modify the unit.
Failure to follow this instruction may result in fire or electric shock.

⚠ Caution Failure to follow instructions may result in injury or product damage.

01. When connecting the power / measurement input and relay output, use AWG 24 (0.20 mm²) to AWG 15 (1.65 mm²) cable and tighten the terminal screw with a tightening torque of 0.98 to 1.18 N m.
Use the wiring suitable for the load current capacity.
Failure to follow this instruction may result in fire or malfunction due to contact failure.
02. Use the unit within the rated specifications.
Failure to follow this instruction may result in fire or product damage.
03. Use dry cloth to clean the unit, and do not use water or organic solvent.
Failure to follow this instruction may result in fire or electric shock.
04. Keep the product away from metal chip, dust, and wire residue which from flowing into the unit.
Failure to follow this instruction may result in fire or product damage.

Cautions during Use

- Follow instructions in 'Cautions during Use'.
  Otherwise, it may cause unexpected accidents.
- Power supply should be insulated and limited voltage / current or Class 2, SELV power supply device.
- Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
- Use twisted pair wire for communication line.
- Keep away from high voltage lines or power lines to prevent inductive noise.
  In case installing power line and input signal line closely, use line filter or varistor at power line and shielded wire at input signal line. Do not use near the equipment which generates strong magnetic force or high frequency noise.
- This unit may be used in the following environments.
  - Indoors (in the environment condition rated in 'Specifications')
  - Altitude max. 2,000 m
  - Pollution degree 2
  - Installation category II

Ordering Information

This is only for reference, the actual product does not support all combinations.
For selecting the specified model, follow the Autonics website.

MP 5 ❶ - ❷ ❸

❶ Size
S: DIN W 48 × H 48 mm
Y: DIN W 72 × H 36 mm
W: DIN W 96 × H 48 mm

❷ Power supply
2: 24 VAC~ 50 / 60 Hz, 24 - 48 VDC⎓
4: 100 - 240 VAC~ 50 / 60 Hz

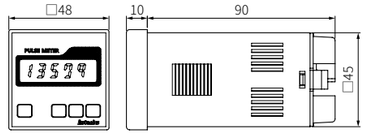
❸ Output

Output		Main (comparative value) output	Sub (display value) output
MP5S	N	Indicator	-
MP5Y	N	Indicator	-
	1	NPN open collector quintuple	-
	2	PNP open collector quintuple	-
	3	Indicator	BCD Dynamic
	4	Indicator	PV transmission (current)
	5	Indicator	RS485 comm.
	6	Relay triple (H, GO, L)	-
MP5W	N	Indicator	-
	A	Relay quintuple (HH, H, GO, L, LL)	-
	1	Relay triple (H, GO, L)	-
	2	NPN open collector quintuple	BCD Dynamic
	4	NPN open collector quintuple	PV transmission (current)
	5	PNP open collector quintuple	PV transmission (current)
	8	NPN open collector quintuple	RS485 comm.
	9	PNP open collector quintuple	RS485 comm.

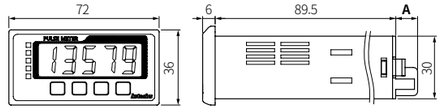
Dimensions

- Unit: mm, For the detailed drawings, follow the Autonics website.
- This dimensions shows the indicator. The connector (side length) is different according to the output specification.

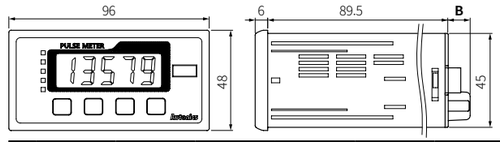
■ MP5S



■ MP5Y



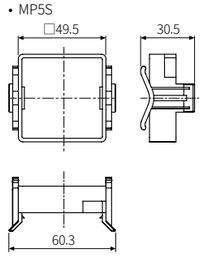
■ MP5W



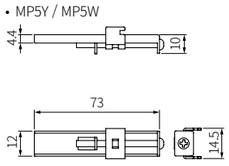
	MP5Y-□N	MP5Y-□1/2/3/4/5	MP5Y-□6	MP5W-□N	MP5W-□A/1	MP5W-□2/4/5/8/9
A	10.5	14.5	15.3	-	-	-
B	-	-	-	10.5	10.5	14.5

■ Bracket

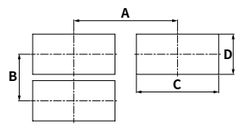
- MP5S



- MP5Y / MP5W



■ Panel cut-out



	A	B	C	D
MP5S	≥ 65	≥ 65	$45^{+0.6}_{0}$	$45^{+0.6}_{0}$
MP5Y	≥ 91	≥ 40	$68^{+0.7}_{0}$	$31.5^{+0.5}_{0}$
MP5W	≥ 116	≥ 52	$92^{+0.8}_{0}$	$45^{+0.6}_{0}$

Sold Separately

- [MP5W] Terminal protection cover: M6P / M9P-COVER

Manual

For proper use of the product, refer to the manuals and be sure to follow the safety considerations in the manuals.
Download the manuals from the Autonics website.

Software

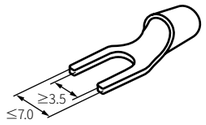
Download the installation file and the manuals from the Autonics website.

■ DAQMaster

It is the comprehensive device management program for Autonics' products, providing parameter setting, monitoring and data management.

Cautions during Wiring

- Unit: mm, Use terminals of size specified below.



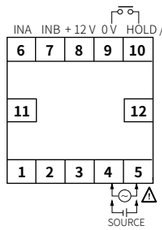
- Contact the manufacture for the socket and cable.

Model	Specification		Manufacture
MP5Y-□1/2/3/4/5	Hirose connector	HIF3BA-10PA-2.54DS	Hirose Electric
	Applied connector socket	HIF3BA-10D-2.54R	
MP5W-□2/4/5/8/9	Hirose connector	HIF3BA-20PA-2.54DS	Hirose Electric
	Applied connector socket	HIF3BA-20D-2.54R	
	I / O cable (sold saparately)	CO20-HP□-□	Autonics

Connections

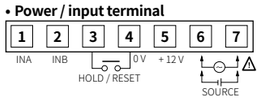
- Indicator model supports only power / input terminals.
- Connector or terminal block support varies by model. Refer to the cautions during wiring.
- HOLD / RESET terminal function is different depending on the operation mode. (F1 to F12: HOLD, F13 to F16: RESET)

■ MP5S

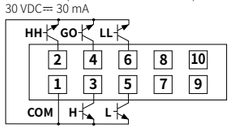


■ MP5Y

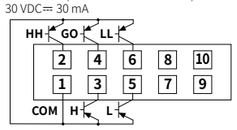
• Power / input terminal



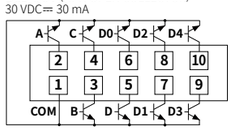
• 1: NPN open collector output
MAIN OUT (NPN OPEN COLLECTOR)
30 VDC⎓ 30 mA



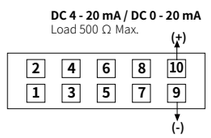
• 2: PNP open collector output
MAIN OUT (PNP OPEN COLLECTOR)
30 VDC⎓ 30 mA



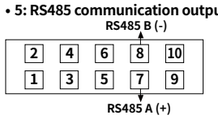
• 3: BCD Dynamic output
BCD OUT (NPN OPEN COLLECTOR)
30 VDC⎓ 30 mA



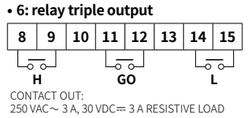
• 4: PV transmission output
DC 4 - 20 mA / DC 0 - 20 mA
Load 500 Ω Max.



• 5: RS485 communication output



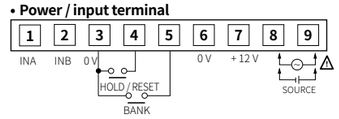
• 6: relay triple output



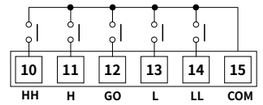
CONTACT OUT:
250 VAC~ 3 A, 30 VDC⎓ 3 A RESISTIVE LOAD

■ MP5W

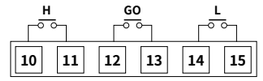
• Power / input terminal



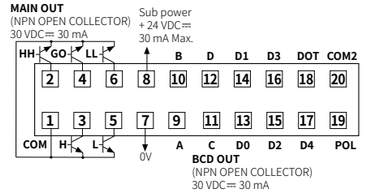
• A: relay quintuple output
CONTACT OUT:
250 VAC~ 3 A, 30 VDC⎓ 3 A RESISTIVE LOAD



• 1: relay triple output
CONTACT OUT:
250 VAC~ 3 A, 30 VDC⎓ 3 A RESISTIVE LOAD



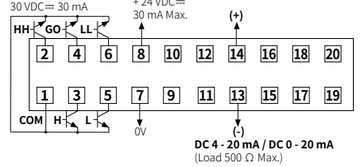
• 2: NPN open collector + BCD Dynamic output
MAIN OUT
(NPN OPEN COLLECTOR)
30 VDC⎓ 30 mA
Sub power
+ 24 VDC⎓
30 mA Max.



BCD OUT
(NPN OPEN COLLECTOR)
30 VDC⎓ 30 mA

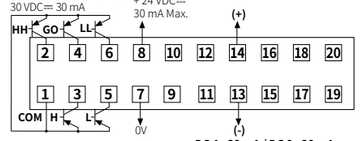
- POL signal turns ON when the display value is a minus (-) value.

• 4: NPN open collector + PV transmission output
MAIN OUT
(NPN OPEN COLLECTOR)
30 VDC⎓ 30 mA
Sub power
+ 24 VDC⎓
30 mA Max.



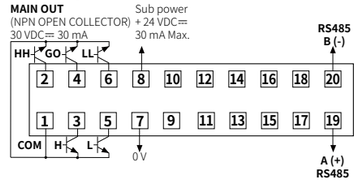
DC 4 - 20 mA / DC 0 - 20 mA
(Load 500 Ω Max.)

• 5: PNP open collector + PV transmission output
MAIN OUT
(PNP OPEN COLLECTOR)
30 VDC⎓ 30 mA
Sub power
+ 24 VDC⎓
30 mA Max.

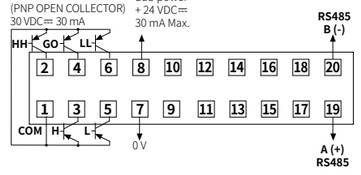


DC 4 - 20 mA / DC 0 - 20 mA
(Load 500 Ω Max.)

• 8: NPN open collector + RS485 comm.
MAIN OUT
(NPN OPEN COLLECTOR)
30 VDC⎓ 30 mA
Sub power
+ 24 VDC⎓
30 mA Max.



• 9: PNP open collector + RS485 comm.
MAIN OUT
(PNP OPEN COLLECTOR)
30 VDC⎓ 30 mA
Sub power
+ 24 VDC⎓
30 mA Max.



Specifications

Series	MP5S	MP5Y	MP5W
Input signal[01]	Solid state input 1: ≤ 50 kHz (pulse width: ≥ 10 μs) Solid state input 2 [02]: ≤ 5 kHz (spulse width: ≥ 100 μs) Contact input: ≤ 45 Hz (contact: 12 VDC⎓ ≥ 5 mA, (pulse width: ≥ 11 ms)		
Voltage input	Input impedance: 3.9 kΩ, [H]: 4.5 - 24 VDC⎓, [L]: 0 - 1 VDC⎓		
No-voltage input	Short-circuit impedance: ≤ 80 Ω, residual voltage: ≤ 1 VDC⎓, open-circuit impedance: ≥ 100 kΩ		
Display method	7-segment LED (zero blanking method)		
Character size	W 4 × H 8 mm	W 7 × H 14 mm	
Prescale	0.0001 × 10^{-9} to 9.9999 × 10^{9}		
Hysteresis	0 to 9999 [03]		
Display cycle	OFF [04], 0.05, 0.5, 1, 2, 4, 8 sec (same as update output cycle)		
Display range	-19999 to 99999		
Output	Depending on models		
Relay	250 VAC~ 3 A, 30 VDC⎓ 3 A resistive load		
NPN / PNP open collector	≤ 30 VDC⎓ 30 mA		
BCD Dynamic	NPN open collector ≤ 30 VDC⎓ 30 mA (Dynamic COM cycle (T) = 40 ms)		
PV transmission (DC 4 - 20 mA, DC 0 - 20 mA)	Resolution - 1/ 8,000 (DC 4 - 20 mA), 1/10,000 (DC 0 - 20 mA) Load resistance: ≤ 500 Ω Response time [05]: ≤ 300 ms, Output accuracy (23 ± 5 °C): ± 0.3 % F.S.		
RS485 communication	Modbus RTU		
Product components	Product, instruction manual		
Bracket	Mounted	× 2	× 2
Unit sticker	× 1	× 1	× 2
Protection rating	IP54 (front part, IEC standard)		
Unit weigth (package)	≈ 132 g (≈ 191 g)	≈ 140 g (≈ 230 g)	≈ 210 g (≈ 334 g)
Certification	CE UK CA cULus EAC		

01) Standard duty ratio 1:1
02) Operation mode F7, F8, F9, F10: ≤ 1 kHz (pulse width: ≥ 500 μs)
03) The hysteresis setting range varies according to the decimal point setting position.
04) Only available operation mode F2, F16
05) Based on the display cycle of 0.2 seconds.
Deviations may occur depending on the device environment and the display cycle of the product.
Response time: Time taken to proportional output to the rapidly changing input from 15 → 95 % or 95 → 15 %.

	AC voltage	AC / DC voltage
Power supply	100 - 240 VAC~ 50 / 60 Hz	24 VAC~ 50 / 60 Hz, 24 - 48 VDC⎓
Permissible voltage range	90 to 110 % of rated voltage	
Power consumption	Depending on Series / power supply	
MP5S	≤ 7.5 VA	AC: ≤ 6 VA, DC: ≤ 4.5 W
MP5Y	≤ 9 VA	AC: ≤ 7 VA, DC: ≤ 6.2 W
MP5W	≤ 15 VA	AC: ≤ 11 VA, DC: ≤ 7 W
External power supply	≤ 12 VDC⎓ ± 10 % 80 mA	
Sub power supply[01]	≤ 24 VDC⎓ 30 mA	
Memory retention	Number of inputs: 100,000 operations (non-volatile semiconductor memory type)	
Relay life cycle	Mechanical: ≥ 10,000,000 operations (switching frequency 180 operations / min) Electrical: ≥ 100,000 operations (250 VAC~ 3 A, 30 VDC⎓ 3 A resistive load) (switching frequency 20 operations / min)	
Insulation resistance	≥ 100 MΩ (500 VDC⎓ megger)	
Dielectric strength	Between the charging part and the case: 3,000 VAC~ 60 Hz for 1 min	
Noise immunity	±2 kV the square wave noise (pulse width: 1μs) by the noise simulator	
Vibration	0.75 mm double amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 1 hour	
Vibration (malfunction)	0.5 mm double amplitude at frequency of 10 to 55 Hz in each X, Y, Z direction for 10 min	
Shock	300m / s^2 (≈ 30G) in each X, Y, Z direction for 3 times	
Shock (malfunction)	100m / s^2 (≈ 30G) in each X, Y, Z direction for 3 times	
Ambient temperature	-10 to 50 °C, storage: -20 to 60 °C (no freezing or condensation)	
Ambient humidity	35 to 85 %RH, storage: 35 to 85 %RH (no freezing or condensation)	

01) Only for MP5W

Operation mode		Measurement range	Measurement accuracy (23 ± 5 °C)
F1	Frequency / revolutions / speed	0.0005 Hz to 50 kHz	F.S. ± 0.05 % rdg ± 1 digit
F2	Passing speed		
F3	Cycle	0.01 to max. of each time range	F.S. ± 0.01 % rdg ± 1 digit
F4	Passing time		
F5	Time interval		
F6	Time differential		
F7	Absolute ratio	0.0005 Hz to 50 kHz	F.S. ± 0.05 % rdg ± 1digit
F8	Error ratio		
F9	Density		
F10	Error		
F11	Length measurement 1	0 to 99999	-
F12	Interval		
F13	Accumulation		
F14	Addition / subtraction-individual input	-19999 to 99999	
F15	Addition / subtraction-phase difference input		
F16	Length measurement 2	0 to 99999	

Communication Interface

■ RS485

Comm. protocol	Modbus RTU (16-bit CRC)
Application standard	Compliance with EIA RS485
Max. connection	31-unit (address: 1 to 127)
Comm. synchronous method	Asynchronous
Comm. method	2-wire half duplex
Comm. distance	≤ 800 m
Comm. speed	2,400 / 4,800 / 9,600 (default) / 19,200 / 38,400 bps
Comm. response time	5 to 99 ms (default: 20 ms)
Start bit	1-bit (fixed)
Data bit	8-bit (fixed)
Parity bit	None (default), Even, Odd
Stop bit	1-bit, 2-bit (default)

Mode Setting

RUN → [MODE] → **Parameter 0 group** → [MODE] → RUN
RUN → [MODE] 2 sec → **Parameter group** [01] → [MODE] 3 sec → RUN

01) Press [▲], [▼] key or [MODE] key for 1.5 sec after entering parameter: select parameter groups.

Parameter Setting

- Some parameters are activated / deactivated depending on the model or setting of other parameters. Refer to the description of each parameter.
- The parameter and setting value are cross-displayed on the display part.
- If any key is not entered for 60 sec in each parameter, it returns to RUN mode.
- [MODE] key: Saves current setting value and moves to the next parameter.
  [◀] key: Checks fixed value / Changes setting digits.
  [▲], [▼] key: Changes setting values.

■ Parameter 0 group

Parameter		Display	Default	Setting range	Display condition
P0-1	HH comparative value	PSt.HH	99999	[Comparative value output model [01]] Operation mode / Setting range: F1, F2, F7, F9, F11, F12, F13, F16 / 0 to 99999 F3, F4, F5, F6 / 0.01 to time setting range F8, F10, F14, F15 / -19999 to 99999 • Varies according to P1-1 Input operation mode and P2-2 Decimal point position of display value • Same parameters at parameter 2 group are linked.	P1-4 Output mode: except F
P0-2	H comparative value	PSt.H	99999		-
P0-3	L comparative value	PSt.L	00000		-
P0-4	LL comparative value	PSt.LL	00000		P1-4 Output mode: except F
P0-5	Max. monitoring value	HPEY	99999	• Reset (PV): [◀] key for over 2 sec	P1-1 Input operation mode: except F13, F16
P0-6	Min. monitoring value	LPEY	-99999		

01)

Parameter	Comparative value output model	
	Quintuple	Triple
HH comparative value	○	-
H comparative value	○	○
L comparative value	○	○
LL comparative value	○	-

■ Parameter 1 group

Parameter		Display	Default	Setting range	Display condition
P1-1	Input operation mode	InPdE	F1	F1 to F16	-
P1-2	Input A sensor type	In-A	nPnHF	NPN.H.F : NPN non-contact input1 NPN.M.F : NPN non-contact input2 NPN.L.F : NPN contact input PNP.H.F : PNP non-contact input1 PNP.M.F : PNP non-contact input2 PNP.L.F : PNP contact input	-
P1-3	Input B sensor type	In-b	nPnHF		P1-1 Input operation mode: F2, F6 to 14, F16 [01]
P1-4	Output mode	oUt-t	StArd	[Comparative value output model] STARD : S (Standard) OUT-H : H (High) OUT-L : L (Low) OUT-B : B (Block) OUT-I : I (One-shot) OUT-F : F (Deflection) *	P1-1 Input operation mode: except F13 & * P1-1 Input operation mode: except F16
P1-5	Output hysteresis	HYS	0001	[Comparative value output model] 0000 to 9999 • Varies according to P2-2 Decimal point position of display value	P1-1 Input operation mode: F1, F7 to 10
P1-6	Delay monitoring	GUArd	F.dEFY	[Comparative value output model] F.DEFY: LL, L comparative output limit * STAR.T: Start compensation timer [02]	P1-1 Input operation mode: F1 to 12 *P1-4 Output mode: S, B, F
P1-7	Start compensation timer	StArt	0.0	[Comparative value output model] 0.0 to 99.9 sec	P1-6 Delay monitoring: STAR.T
P1-8	Input A auto-zero time	AUtoA	9999.9	0.1 to 9999.9 sec	P1-1 Input operation mode: F1, F4, F7 to 10
P1-9	Input B auto-zero time	AUtob	9999.9		P1-1 Input operation mode: F7 to 10
P1-10	Memory retention	nEno	oFF	OFF, ON	P1-1 Input operation mode: F13 to 16

01) In case of P1-1 Input operation mode F15, input B sensor type is not displayed and IN-B setting is same as IN-A.
02) [▲] key: Entering compensation time setting

■ Parameter 2 group

Parameter		Display	Default	Setting range	Display condition
P2-1	Data bank	PbAnE	1	[MP5W model] 1, 2	-
P2-2	Decimal point position of display value	dot	00000	00000, 0000.0, 000.00, 00.000, 0.0000	P1-1 Input operation mode: F1 to 2, F7 to 16
P2-3	Time unit [01]	t.Unt	t.SEC	T.SEC, T.MIN	P1-1 Input operation mode: F3 to 6
P2-4	Time range (unit: sec) [01]	t.SEC	999.99	999.99: 999.99 s 9999.9: 9999.9 s 99.59.9: 99 m 59.9 s 9.59.59: 9 h 59 m 59 s 99999: 99999 s	
P2-5	Time range (unit: min) [01]	t.Min	999.99	999.99: 999.99 m 9999.9: 9999.9 m 99.59.9: 99 h 59.9 m 9.59.59: 999 h 59 m 99999: 99999 m	
P2-6	HH comparative value	PSt.HH	99999	[Comparative value output model] linked with parameter 0 group parameters	P1-4 Output mode: except F
P2-7	H comparative value	PSt. H	99999		-
P2-8	L comparative value	PSt. L	00000		-
P2-9	LL comparative value	PSt.LL	00000		P1-4 Output mode: except F
P2-10	Input A prescale mantissa (x)	PSC.AH	0.0000	0.0001 to 9.9999	P1-1 Input operation mode: F1 to 2, F4, F7 to 16
P2-11	Input A prescale exponent (y)	PSC.AY	10 01	10 - 9 (10^{-9}) to 10 09 (10^{9})	
P2-12	Input B prescale mantissa (x)	PSC.bH	0.0000	0.0001 to 9.9999	P1-1 Input operation mode: F7 to 10
P2-13	Input B prescale exponent (y)	PSC.bY	10 01	10 - 9 (10^{-9}) to 10 09 (10^{9})	
P2-14	Display cycle	di SP.t	0.05	OFF [02] or 0.05, 0.5, 1, 2, 4, 8 sec	P1-1 Input operation mode: F1 to 2, F7 to 10, F16
P2-15	Input B setting value (INB)	CoUnb	99999	1 to 99999	P1-1 Input operation mode: F16

01) To enter P2-4 time range (unit: sec) and P2-5 time range (unit: min) setting, press [▲] key at P2-3 time unit.
02) Only available operation mode F2, F16

■ Parameter 3 group

Parameter		Display	Default	Setting range	Display condition
P3-1	Max. PV transmission output value	FS-H	99999	[PV transmission (current) output model] min. value to max. value (FS-H ≥ FS-L + 1) Operation mode / Setting range: F1, F2, F7, F9, F11, F12, F13, F16 / 0 to 99999 F3, F4, F5, F6 / 0.01 to time setting range F8, F10, F14, F15 / -19999 to 99999 • Varies according to P1-1 Input operation mode and P2-2 Decimal point position of display value	-
P3-2	Min. PV transmission output value	FS-L	00000		-
P3-3	current output	nA	4-20	[PV transmission (current) output model] 4-20, 0-20 mA	-
P3-4	Comm. address	Addr	01	[RS485 communication output model] 01 to 99	-
P3-5	Comm. speed	bPS	9600	[RS485 communication output model] 2400, 4800, 9600, 19200, 38400 bps	-
P3-6	Comm. parity bit	PrtY	nonE	[RS485 communication output model] NONE, EVEN, ODD	-
P3-7	Comm. stop bit	StP	2	[RS485 communication output model] 1, 2	-
P3-8	Comm. response waiting time	rSUt	20	[RS485 communication output model] Comm. speed / Setting range: 2400 bps / 16 to 99 ms 4800 bps / 8 to 99 ms 9600, 19200, 38400 bps / 5 to 99 ms • Setting range varies according to P3-5 Comm. speed	-
P3-9	Comm. write	ConY	diSA	[RS485 communication output model] ENA: enable, DISA: disable	-
P3-10	Lock	LoC	oFF	OFF : Unlock LOC.0 : Lock All LOC.1 : Lock parameter 1 / 2 / 3 LOC.2 : Lock parameter 2 / 3 LOC.3 : Lock parameter 3	-
P3-11	Parameter reset	ArSt	EnA	ENA: enable, DISA: disable	-

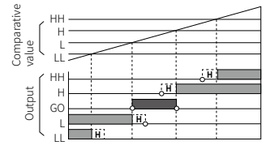
Output Mode

Output mode is available to set. (Indicator does not support output mode.)
ON: ■■■■ **OFF:** ____ **H:** hysteresis

■ S (Standard) output mode

- Comparative value setting condition: individual output operation regardless of size or order of set comparative values

HH output: Display value ≥ Comparative value HH
H output: Display value ≥ Comparative value H
L output: Display value ≤ Comparative value L
LL output: Display value ≤ Comparative value LL
GO output: No HH, H, L, LL output



■ H (High) output mode

- Comparative value setting condition: individual output operation regardless of size or order of set comparative values

HH output: Display value ≥ Comparative value HH
H output: Display value ≥ Comparative value H
L output: Display value ≥ Comparative value L
LL output: Display value ≥ Comparative value LL
GO output: No HH, H, L, LL output

■ L (Low) output mode

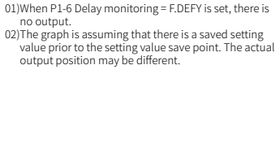
- Comparative value setting condition: individual output operation regardless of size or order of set comparative values

HH output: Display value ≤ Comparative value HH
H output: Display value ≤ Comparative value H
L output: Display value ≤ Comparative value L
LL output: Display value ≤ Comparative value LL
GO output: No HH, H, L, LL output

■ B (Block) output mode

- Comparative value setting condition: LL<L<H<HH

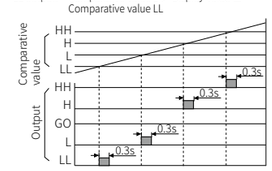
HH output: Display value ≥ Comparative value HH
H output: Comparative value HH > Display value ≥ Comparative value H
L output: Comparative value LL < Display value ≤ Comparative value L
LL output: Display value ≤ Comparative value LL
GO output: No HH, H, L, LL output



■ I (One-shot) output mode

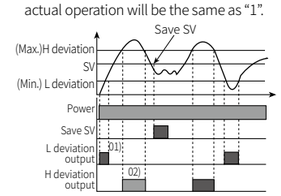
- Comparative value setting condition: individual output operation regardless of size or order of set comparative values
- One-shot output time: 0.3 sec (fixed)
- No GO output.
- No hysteresis.

HH output: Display value ≥ Comparative value HH
H output: Comparative value HH > Display value ≥ Comparative value H
L output: Comparative value H > Display value ≥ Comparative value L
LL output: Comparative value L > Display value ≥ Comparative value LL



■ F (Deflection) output mode

- Transmits outputs when the saved setting value exceeds H deviation or L deviation.
- Comparative value setting
  : Based on the set value, set the H / L deviation in the P0-2, P2-7 H comparative value and P0-3, P2-8 L comparative value parameters.
  (The set deviation value is saved during Power OFF until it is re-set.)
- Comparative value setting range
  : 0.0001 to 99999
  The setting range is different according to the P2-2 Decimal point position of display value setting.
  E.g.) In case of P2-2 Decimal point position of display value = 0000.0, setting range = 0.1 to 9999.9
- Saving setting value: [MODE] + [▲]
- Checking setting value: [▲]
- No HH, GO, LL output.
- The deviation can be set to "0" but the actual operation will be the same as "1".



01)When P1-6 Delay monitoring = F.DEFY is set, there is no output.
02)The graph is assuming that there is a saved setting value prior to the setting value save point. The actual output position may be different.

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