

01) PV display part: displays maximum value, SV display part: displays minimum value

## Parameter Setting

- Some parameter are activated / deactivated depending on other parameters. Refer to the description.
- It returns to RUN mode when there is no additional key input for 60 sec in each parameter group.
- When pressing the [M] key once within 2 sec when returning RUN mode from parameter groups, it enters the previous parameter group.

### Parameter 1 group

Parameter	Display	Default	Setting range	Condition
OUT1 operation mode	OUT1	EASY	EASY: easy, HYS.M: hysteresis, WIN: window comparison output, AUTO: auto sensitivity setting, F.OUT: forced output control	-
OUT2 operation mode	OUT2	OFF	OFF, EASY: easy, HYS.M: hysteresis, WIN: window comparison output Auto setting (following OUT1 setting)	1-1 OUT1 operation mode: EASY, HYS.M, WIN 1-1 OUT1 operation mode: AUTO, F.OUT
Analog output / external input terminal <sup>(01)</sup>	OUT	A-V	[Option input/output model] A-V: analog voltage output, A-C: analog current output, SHFT: auto shift, ZERO: remote zero, HOLD: hold	-
Auto shift applied terminal	SHFT	OUT	[Option input/output model] OUT1, OUT2, ALL: OUT1 & OUT2	1-3 analog output/external input terminal: SHFT
Remote zero applied terminal	ZERO	OUT	[Option input/output model] OUT1, OUT2, ALL: OUT1 & OUT2	1-3 analog output/external input terminal: ZERO
Output type	NO/NC	NO	OUT1	1-2 OUT2 operation mode: OFF
			OUT2	1-2 OUT2 operation mode: OFF
			NO	Normally Open
			NC	Normally Closed
			OUT1	Normally Open
Response time	SPD	2.5	2.5, 5, 10, 25, 50, 100, 250, 500, 1000, 5000 ms	-
			Display color: default / output	-
			R-ON: green/red, G-ON: red/green, RED: red/red, GREN: green/green	-
			OUT1, OUT2, ALL: OUT1 & OUT2	1-2 OUT2 operation mode: EASY, HYS.M, WIN & 1-8 PV display part color: R-ON, G-ON
PV display part color	CLR	R-ON	-	-
Display color linked output	DISP	OUT	OUT1, OUT2, ALL: OUT1 & OUT2 • Select the output terminal which apply the setting of 1-8 PV display part color.	-
Display unit	UNIT	KPa	kPa, MPa, KGF: kgf/cm <sup>2</sup> , bar, psi, mmHg, inHg, H2O: mmH <sub>2</sub> O	-

01) When 'OUT1 operation mode' is set as 'F.OUT' or applied pressure is higher/lower than the display pressure range, auto shift (SHFT), remote zero (ZERO) functions are not available.

### Parameter 2 group

Parameter	Display	Default	Setting range	Condition
SV display part	SV	5td	STD: preset, UNIT: pressure unit, OFF: no display	-
Parameter copy	COPY	OFF	OFF, ON, ON-L: key lock after copying • Refer to 'Parameter copy'.	-
Parameter reset	RES	OFF	OFF, ON: parameter reset	-
Password	PHD	0000	0000: off, 0001: checking parameter setting value only, 0002 to 9999	-
Control output switching	SO	NPN	NPN, PNP	-
Easy mode hysteresis <sup>(01)</sup>	HYS	III	I to IIIIIII (display bar type, 1 to 8) • Hysteresis value per 1 bar 0.1 kPa (pressure range -100.0 to 100.0 kPa model), 1 kPa (pressure range -100 to 1,000 kPa model)	1-1 OUT1 operation mode or 1-2 OUT2 operation mode: EASY

01) Although the display unit is changed, standard unit of hysteresis for easy mode is not changed.

## Preset Setting

### Setting method

- Setting name and value are cross-displayed in SV display part.
- Set the operation mode in parameter 1 group.
- Enter the preset setting mode by pressing [▼] or [▲] key from RUN mode.
- Select the setting item by [M] key and change the preset by [▼] or [▲] key.
- Press [M] key over 2 sec or no key input over 2 sec, save setting and return to RUN mode. (except forced output control mode)

### Preset setting by operation mode

- 'Default' values are based on rated pressure range -100.0 to 100.0 kPa model. The values in parenthesis '()' is for -100.0 to 1,000 kPa model.

Operation mode	Preset	Default	Setting range
Easy	EASY	P	50.0 (500) Min. value of display pressure < 'P' ≤ max. value of display pressure
Hysteresis	HYS	5t	50.0 (500) Min. value of display pressure < 'ST' ≤ max. value of display pressure
		HYS	-50.0 (0) Min. value of display pressure ≤ 'HYS' < 'ST'
Window comparison output	WIN	Lo	-50.0 (0) Min. value of display pressure ≤ 'LO' ≤ max. value of display pressure - (3×min. display unit)
		Hi	50.0 (500) 'LO' + (3×min. display unit) ≤ 'HI' ≤ max. value of display pressure
Auto sensitivity setting	AUTO	5t	-50.0 (0) Min. value of display pressure ≤ 'ST1' ≤ max. value of display pressure - 1% of rated pressure range
		5Et	050.0 (500) 'ST1' + 1% of rated pressure range ≤ 'ST2' ≤ max. value of display pressure
Forced output control	FO	5Et	0.0 (250) 'ST1' ≤ 'SET' ≤ 'ST2', SET = $\frac{ST1+ST2}{2}$ • Manual setting is possible by [▼] or [▲] key.
		5Et	0.0 (250) 'ST1' ≤ 'SET' ≤ 'ST2', SET = $\frac{ST1+ST2}{2}$ • Manual setting is possible by [▼] or [▲] key.
Analog voltage output scale	A-V	1V output	A-1V -100.0 (0) Min. value of display pressure < 'A-1V' < max. value of display pressure
		5V output	A-5V 100.0 (1,000) 'A-1V' + 10% of rated pressure range < 'A-5V' < max. value of display pressure, or min. value of display pressure < 'A-5V' < 'A-1V' - 10% of rated pressure range
Analog current output scale	A-C	4 mA output	A-04 -100.0 (0) min. value of display pressure < 'A-04' < max. value of display pressure
		20 mA output	A-20 100.0 (1,000) 'A-04' + 10% of rated pressure range < 'A-20' < max. value of display pressure, or min. value of display pressure < 'A-20' < 10% of 'A-04'-rated pressure range

### Preset setting by external input mode

- Apply 0 VDC to orange cable over 1 ms to operate auto shift or remote zero mode.
- Press [▼] + [▲] key over 1 sec to delete set auto shift correction.

Operation mode	Preset	Default	Setting range
Auto shift	SHFT	SHN	0 Min. value of preset setting < 'SH.IN' ≤ max. value of preset setting
Remote zero	ZERO	ZEN	0 Min. value of preset setting < 'ZE.IN' ≤ max. value of preset setting
Hold	HOLD	-	-

### Precaution

- The operation modes (easy, hysteresis, window comparison, auto sensitivity setting) that can be set separately per each output (OUT1/OUT2) display parameter name with identification number
- The preset is reset when changing 'display unit,' analog output / external input terminal' parameter.
- The preset is reset to default when changing 'OUT1/2 operation mode' parameter. But, if there is the previous preset in changed operation mode, it is set the value.

## Setting guide

### NPN or PNP open collector output (OUT1/2)

- Set the output operation mode to use in 'OUT1/2 operation mode' parameter.
- Enter preset setting mode from RUN mode. The items are displayed in the order of OUT1 - OUT2.
- Set the preset for each item.

Setting example - OUT1: hysteresis mode, OUT2: window comparison output mode			
OUT1 operation mode	Hysteresis mode	5t	Pressure detection level
		HYS	Hysteresis level
OUT2 operation mode	Window comparison output mode	Lo	Pressure detection low limit value
		Hi	Pressure detection high limit value

### Analog output/external input

- Set the operation mode to use in 'analog output/external input terminal' parameter.
- Enter preset setting mode from RUN mode. (analog output/external input items are displayed after OUT1 - OUT2)
- Set the preset for each item.

Setting example - analog current output scale			
Analog output / external input	Analog current output	A-04	4 mA output SV
		A-20	20 mA output SV

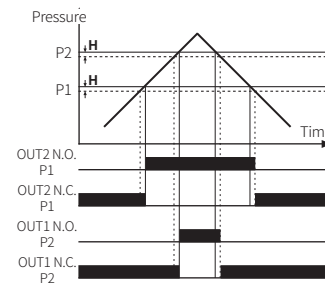
## Output Operation Mode

Change the output operation mode to change pressure detection method.

ON: ■■■■ OFF: \_\_\_\_\_ H: hysteresis A: Min. display interval

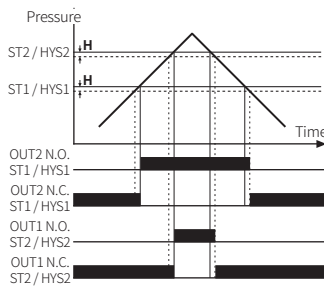
### Easy mode

- Pressure is detected by applying the hysteresis which is set in 'easy mode hysteresis' parameter.
- Setting: Pressure detection level (P1, P2)



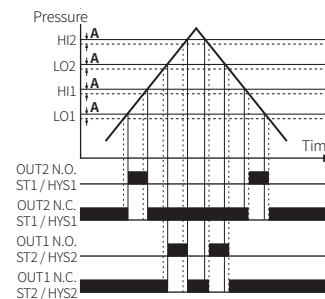
### Hysteresis mode

- Set the hysteresis for pressure detection directly.
- Setting: Pressure detection level (ST1, ST2), hysteresis (HYS1, HYS2)



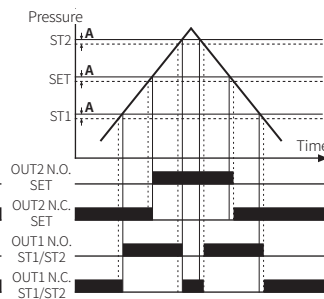
### Window comparison output mode

- It detects pressure at the desired range.
- Hysteresis is fixed as min. display interval.
- Setting: High limit (HI1, HI2), low limit (LO1, LO2) of pressure detection level



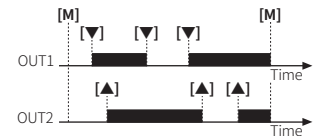
### Auto sensitivity setting mode

- It sets the proper detection sensitivity for pressure detection level (SET) automatically by applying two pressure point (ST1, ST2).
- Setting: SET =  $\frac{ST1+ST2}{2}$
- Hysteresis is fixed as min. display interval.



### Forced output control mode

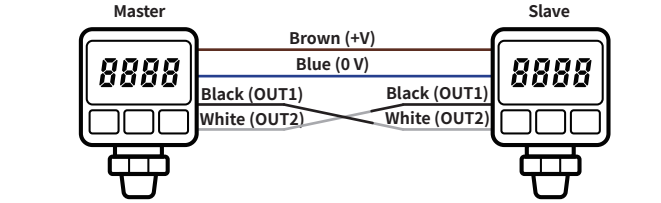
- Regardless of setting value, it maintains comparison output OFF and displays present pressure.
- During forced output control mode, press the [▼] or [▲] key to turn ON/OFF OUT1, 2 manually.



## Parameter Copy

It is function to copy parameter setting from master to slave by 1:1.

- Master and Slave should be the same specification model.
- Select 'ON' or 'ON-L' of master 'parameter copy' parameter to activate the ready status of parameter copy.  
ON: copys setting values of parameters.  
ON-L: after copying the setting values of parameters, activate the key lock function of slave.
  - Check the 'REDY' on SV display part of the master, and turn OFF the master power.
  - Connect the master and slave by referring the below diagram.



- Turn ON the master power with pressing the [M] of the slave. Parameter copy function is executed.
- When connecting master and slave incorrectly, the PV display of master displays 'ERR4'. After checking the connection, turn OFF the master power and turn ON it.
- If parameter copy is in progress, the following message is displayed.  
Master - PV display part: arbitrary value (orange) / SV display part: 'COPY'  
Slave - PV display part: arbitrary value (green) / SV display part: 'OK'
- When completing copy, the PV display parts of master and slave display the same arbitrary value. Turn OFF the master and slave power and disconnect them. Repeat from step 3 to proceed with additional copying.

## Error

Display	Cause	Troubleshooting
ERR1	When zero-point adjustment is executed while external pressure is input.	Try again after removing external pressure.
ERR2	When over-current is applied on control output.	Remove the over current conditions such as adjusting load resistance.
ERR3	When the range of 'ST1', 'ST2' ('auto sensitivity setting mode') is set incorrectly.	Check the setting range and set 'ST1', 'ST2'.
ERR4	When connection between master and slave is wrong during copying parameters.	Check if the cables connection is correct and the models are same.
ERR5	When entering invalid password.	Enter valid password.
HHHH	When applied pressure exceeds the high-limit of display pressure range.	Apply pressure within the display pressure range.
LLLL	When applied pressure exceeds the low-limit of display pressure range.	Apply pressure within the display pressure range.
-HH-	When the correction value of auto shift or remote zero exceeds the high-limit of the setting range.	Set the correction value of auto shift or remote zero within the setting range.
-LL-	When the correction value of auto shift or remote zero exceeds the low-limit of the setting range.	
-HL-	When '-HH-', '-LL-' occur both.	