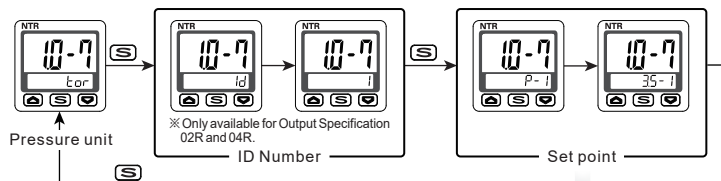


NP400E OPERATION INSTRUCTIONS OF PIRANI GAUGE

K. SUB-DISPLAY DISPLAY SETTING

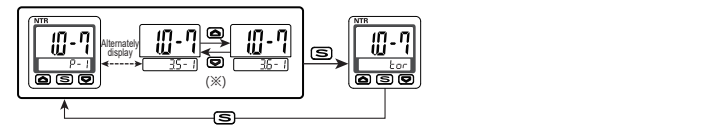
※ When selecting the **voltage** unit, the display will be the same as NP410E.

In measure mode (※), press **[S]** button to switch pressure unit / ID Number / set point, and set the set point. ※ NP400E is power-on and not in the function setting or checking state.



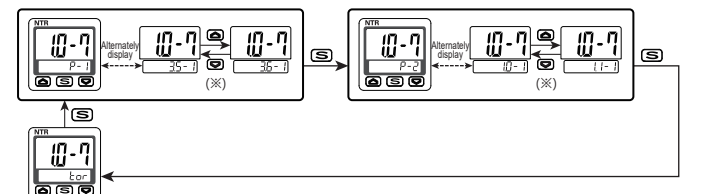
Setting Condition 1

OUT 1 : " oP5 " (One point set mode)
OUT 2 : " oFF " (Not used)



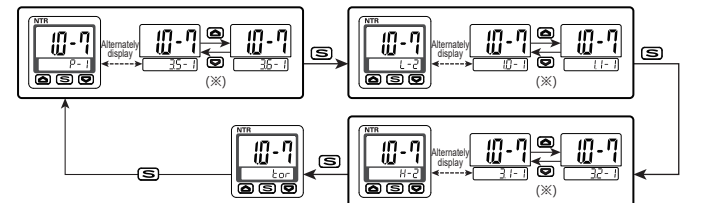
Setting Condition 2

OUT 1 : " oP5 " (One point set mode)
OUT 2 : " oP5 " (One point set mode)



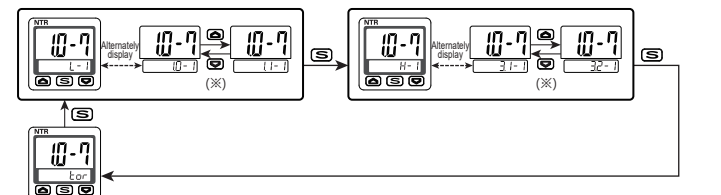
Setting Condition 3

OUT 1 : " oP5 " (One point set mode)
OUT 2 : " HYS " (Hysteresis mode) or " Win " (Window comparator mode)



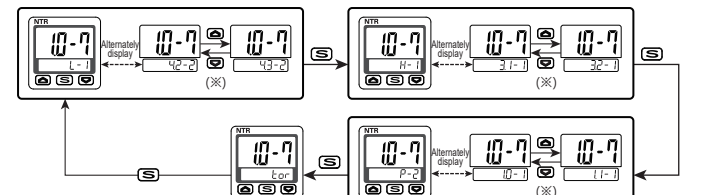
Setting Condition 4

OUT 1 : " HYS " (Hysteresis mode) or " Win " (Window comparator mode)
OUT 2 : " oFF " (Not used)



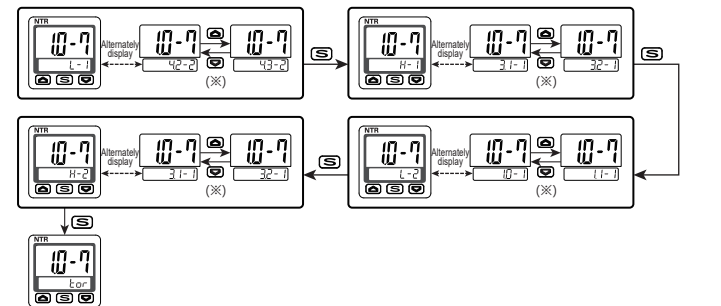
Setting Condition 5

OUT 1 : " HYS " (Hysteresis mode) or " Win " (Window comparator mode)
OUT 2 : " oP5 " (One point set mode)



Setting Condition 6

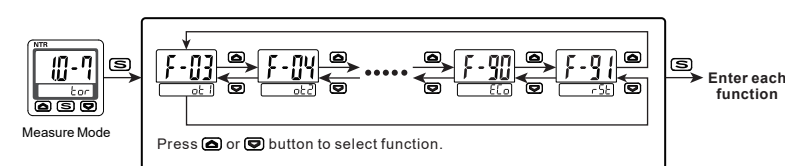
OUT 1 : " HYS " (Hysteresis mode) or " Win " (Window comparator mode)
OUT 2 : " HYS " (Hysteresis mode) or " Win " (Window comparator mode)



L. OPERATION INSTRUCTIONS

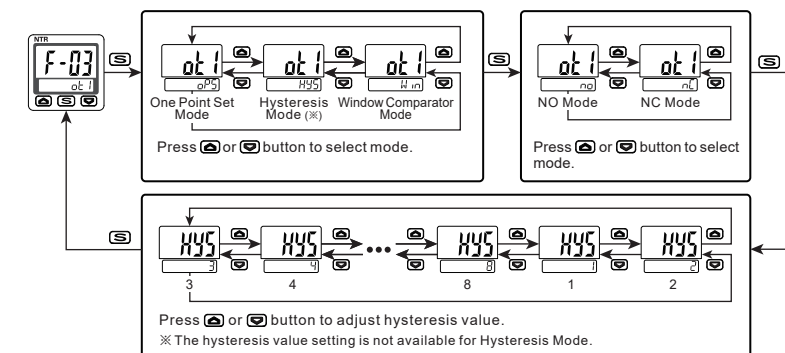
Function Selection

In Measure Mode, press **[S]** button for more than 3 sec. to display [F-03] [oP1].
Press **[S]** for 3 sec. to return to Measure Mode.



[F-03] OUT1 Setting

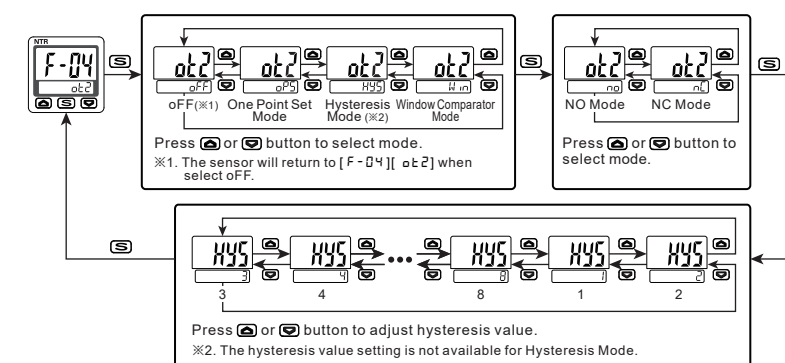
Press **[S]** or **[V]** button at Function Selection to [F-03] [oP1].



[F-04] OUT2 Setting

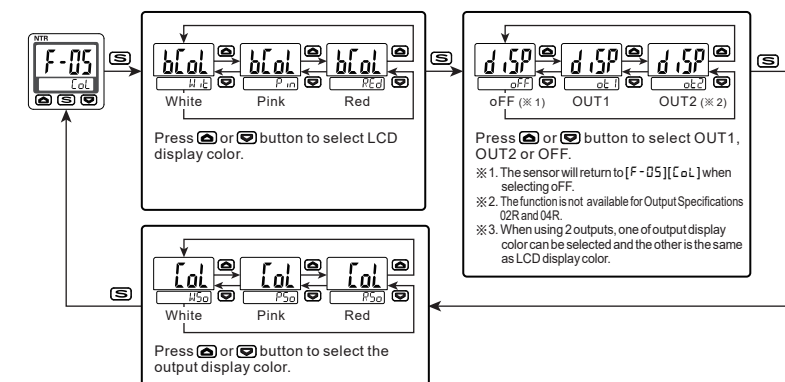
※ Not available for Output Specification 02R and 04R.

Press **[S]** or **[V]** button at Function Selection to [F-04] [oP2].



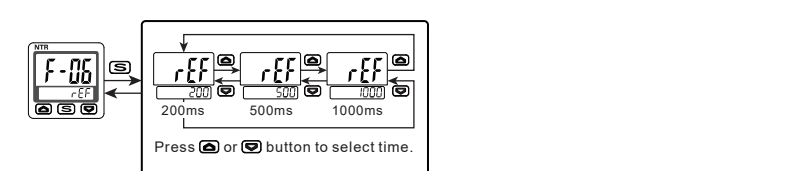
[F-05] LCD Display Color Setting

Press **[S]** or **[V]** button at Function Selection to [F-05] [CoL].
The color of LCD display and output display can be different.



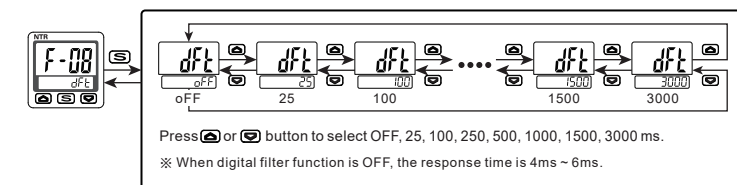
[F-06] Sampling Rate Setting

Press **[S]** or **[V]** button at Function Selection to [F-06] [rEF].



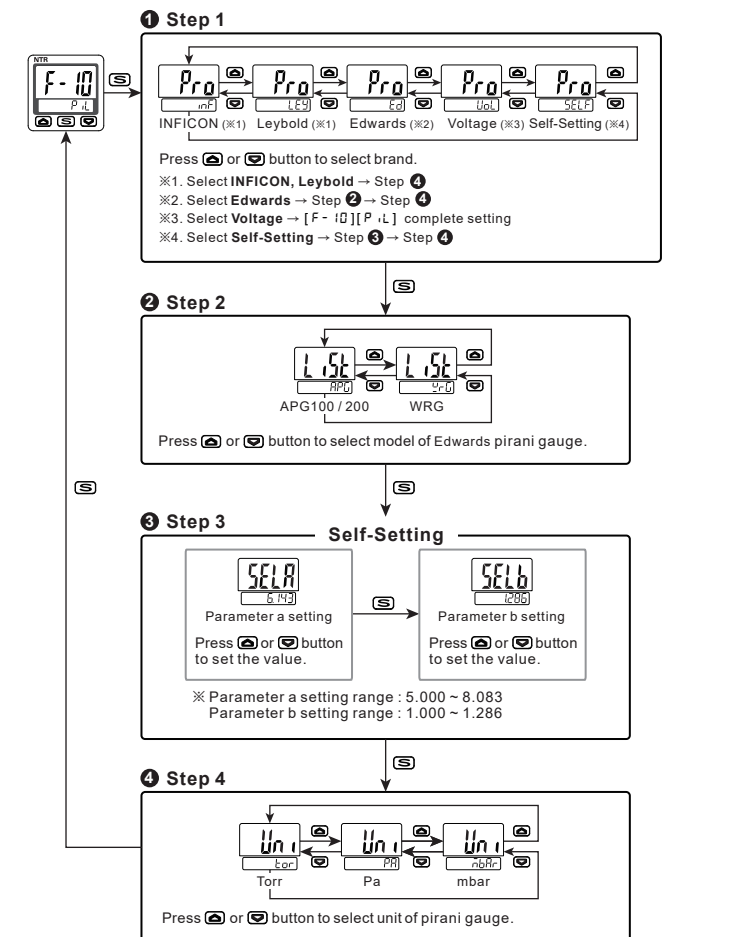
[F-08] Response Time of Digital Filter Setting

Press **[S]** or **[V]** button at Function Selection to [F-08] [dFt].



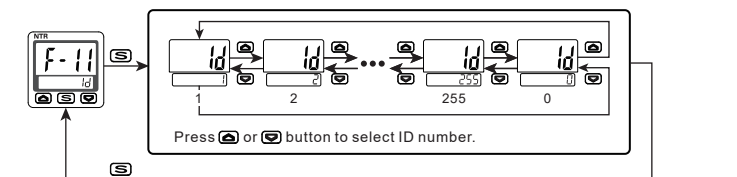
[F-10] Pirani Gauge Unit And Brand Setting

Press **[S]** or **[V]** button at Function Selection to [F-10] [P .L].



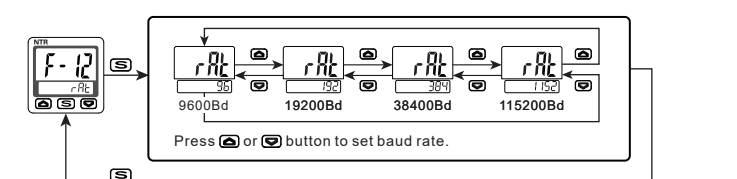
[F-11] RTU ID Number Setting

Press **[S]** or **[V]** button at Function Selection to [F-11] [Id].



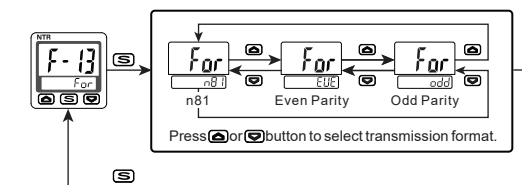
[F-12] RTU Baud Rate Setting

Press **[S]** or **[V]** button at Function Selection to [F-12] [rBt].



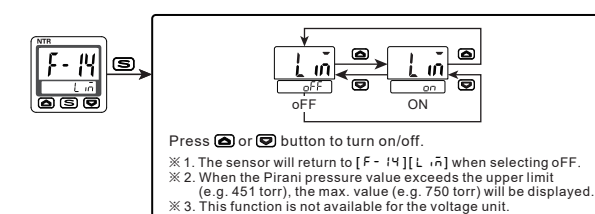
[F-13] RTU Transmission Format Setting

Press **[S]** or **[V]** button at Function Selection to [F-13] [For].



[F-14] Pirani Gauge Display Limit Setting

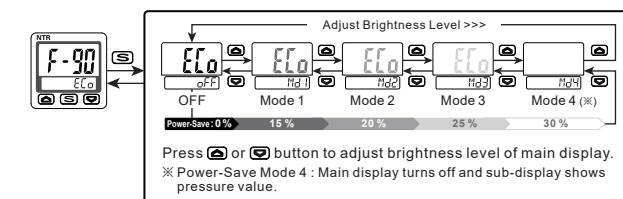
Press **[S]** or **[V]** button at Function Selection to [F-14] [L .n].



[F-90] Power-Save Mode Setting

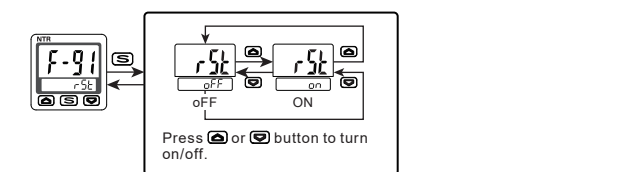
Press **[S]** or **[V]** button at Function Selection to [F-90] [ECa].

When Power-Save Mode turns on,
1. the main-display will be into the selected mode (Mode1 ~ 4), if no buttons are pressed after 30 seconds.
2. the output indicator may not sync, but the sensor still work functionally.
3. press any button back to measure mode.

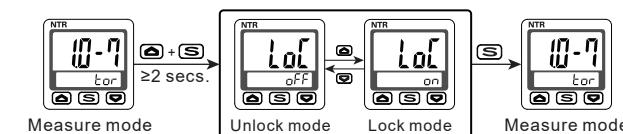


[F-91] Reset to Default Setting

Press **[S]** or **[V]** button at Function Selection to [F-91] [rSt].



M. KEY LOCK/UNLOCK MODE



- Use key lock mode to prevent unauthorized or accidental tampering setting values.
- When lock mode is selected, panel will display " LoL ".

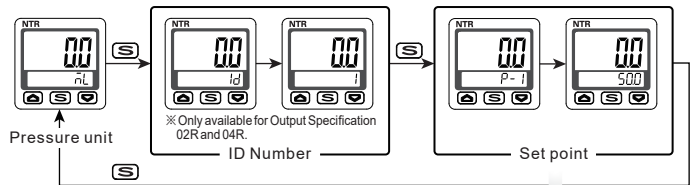
N. COMMUNICATION PROTOCOL (Modbus RTU)

Function Code	Description	Operation
0000	ID Number (Range : 0 ~ 255)	Read Write
0002	Voltage value (Range : 0 ~ 10000)	Read
0003	Unit setting (0 : mbar , 1 : torr , 2 : pa , 3 : mV)	Read Write
0005	Switch output mode (0 : OPS , 1 : HYS , 2 : WIN)	Read Write
0006	Switch output mode (0 : NO , 1 : NC)	Read Write
0007	Response time of digital filter (0 : OFF , 1 : 25ms , 2 : 100ms , 3 : 250ms , 4 : 500ms , 5 : 1000ms , 6 : 1500ms , 7 : 3000ms)	Read Write
0008	Display color selection (0 : White , 1 : Red , 2 : Pink)	Read Write
0009	Hysteresis value (Range : 0 (1 digit) ~ 7 (8 digits))	Read Write
000A	Power-Save mode (0 : OFF , 1 : Mode 1 , 2 : Mode 2 , 3 : Mode 3 , 4 : Mode 4)	Read Write
000C	Baud rate (0 : 9600 bps , 1 : 19200 bps , 2 : 38400 bps , 3 : 115200 bps)	Read Write
000D	Transmission format (0 : n81 , 1 : Even , 2 : Odd)	Read Write
000E	Communications protocol (0 : RTU)	Read
000F	Reset to default setting (0 : ON)	Write
0010	Switch set point (P-1 or L-1) (Range : 0 ~ 10000 mV)	Read Write
0011	Switch set point (H-1) (Range : 0 ~ 10000 mV)	Read Write
0012	Switch output state (0 : OFF , 1 : ON)	Read
0013	Key lock/unlock mode (0 : Unlock , 1 : Lock)	Read Write
0014	Switch output type (0 : NPN , 1 : PNP)	Read
0015	Sampling rate (0 : 200ms , 1 : 500ms , 2 : 1000ms)	Read Write
0018	Real numbers of Pirani display value (Range : 10 (1.0) ~ 99 (9.9))	Read
0019	Exponent of Pirani display value (Range : -9 ~ 19)	Read
001A	Limit switch of pilani gauge (0 : OFF , 1 : ON)	Read Write
001B	Pilani gauge brand (0 : INFICON , 1 : Leybold , 3 : Edwards , 4 : Voltage)	Read Write
001C	Model of Edwards pirani gauge (0 : Edwards-APG , 1 : Edwards-WRG)	Read Write
001D	Real numbers of Pirani set point (L1) (Range : 10 (1.0) ~ 99 (9.9))	Read Write
001E	Exponent of Pirani set point (L1) (Range : -9 ~ 19)	Read Write
001F	Real numbers of Pirani set point (H1) (Range : 10 (1.0) ~ 99 (9.9))	Read Write
0020	Exponent of Pirani set point (H1) (Range : -9 ~ 19)	Read Write
0021	LCD display color output selection (0 : OFF , 1 : OUT1)	Read Write
0022	Output LCD display color selection (0 : White , 1 : Red , 2 : Pink)	Read Write

NP410E OPERATION INSTRUCTIONS

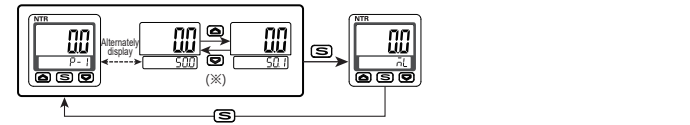
K. SUB-DISPLAY DISPLAY SETTING

In measure mode (※), press **[S]** button to switch pressure unit / ID Number / set point, and set the set point. ※ NP410E is power-on and not in the function setting or checking state.



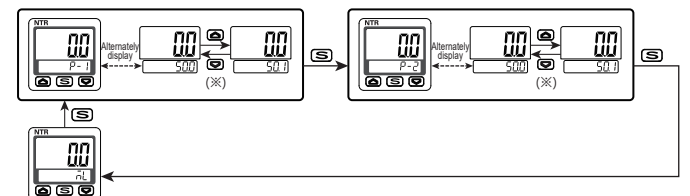
Setting Condition 1

OUT 1 : " oP5 " (One point set mode)
OUT 2 : " oFF " (Not used)



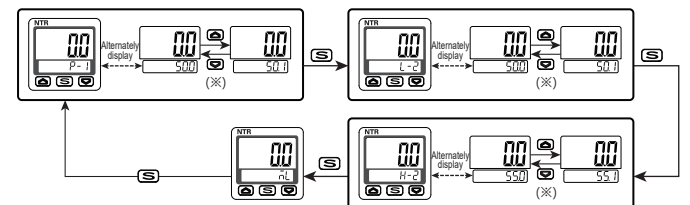
Setting Condition 2

OUT 1 : " oP5 " (One point set mode)
OUT 2 : " oP5 " (One point set mode)



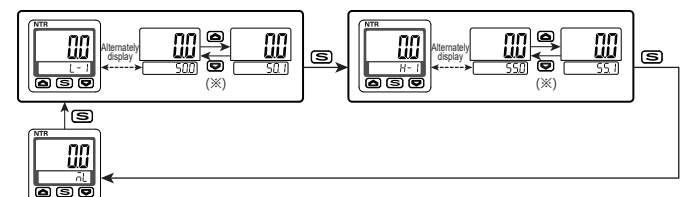
Setting Condition 3

OUT 1 : " oP5 " (One point set mode)
OUT 2 : " HYS " (Hysteresis mode) or " Win " (Window comparator mode)



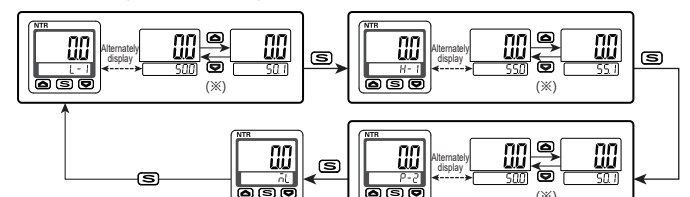
Setting Condition 4

OUT 1 : " HYS " (Hysteresis mode) or " Win " (Window comparator mode)
OUT 2 : " oFF " (Not used)



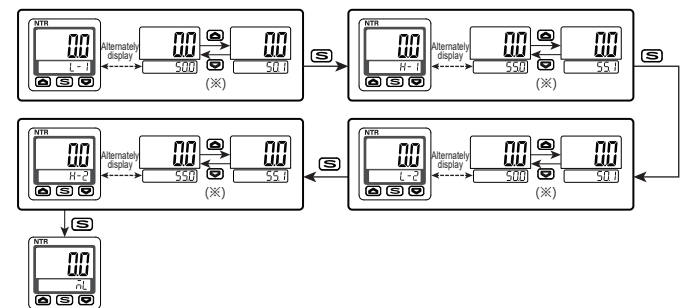
Setting Condition 5

OUT 1 : " HYS " (Hysteresis mode) or " Win " (Window comparator mode)
OUT 2 : " oP5 " (One point set mode)



Setting Condition 6

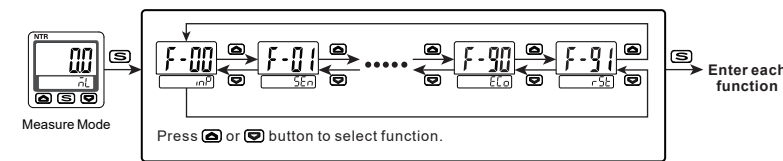
OUT 1 : " HYS " (Hysteresis mode) or " Win " (Window comparator mode)
OUT 2 : " HYS " (Hysteresis mode) or " Win " (Window comparator mode)



L. OPERATION INSTRUCTIONS

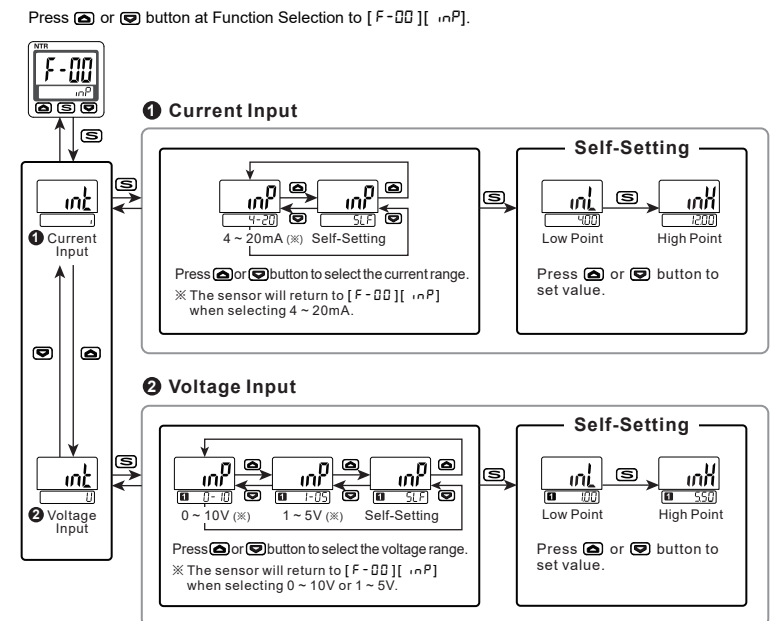
Function Selection

In Measure Mode, press **[S]** button for more than 3 sec. to display [F-00] [nP]. Press **[S]** for 3 sec. to return to Measure Mode.



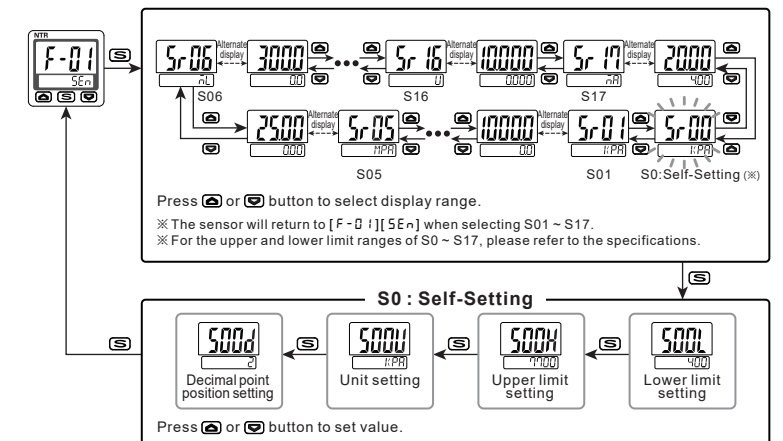
[F-00] Input Type Setting

※ The function is not available for S16 and S17.



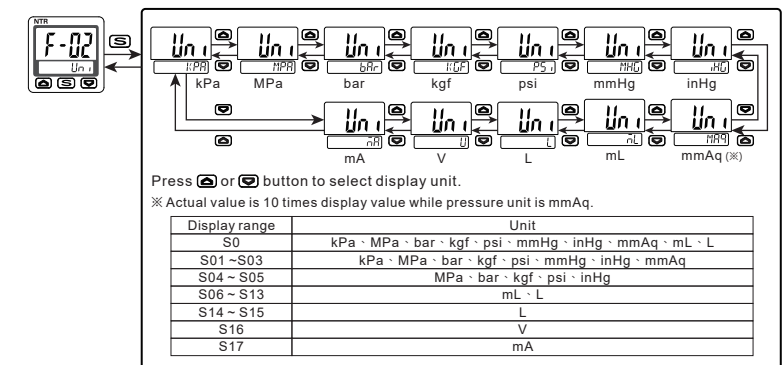
[F-01] Display Range Setting

Press **[S]** or **[V]** button at Function Selection to [F-01] [5En].



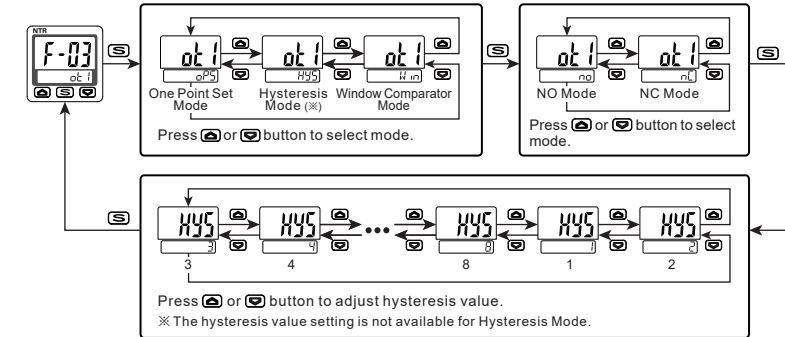
[F-02] Unit Setting

Press **[S]** or **[V]** button at Function Selection to [F-02] [nP].



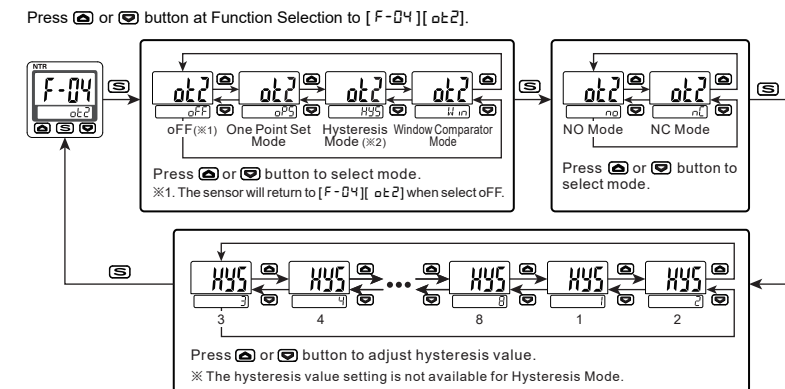
[F-03] OUT1 Setting

Press **[S]** or **[V]** button at Function Selection to [F-03] [oE1].



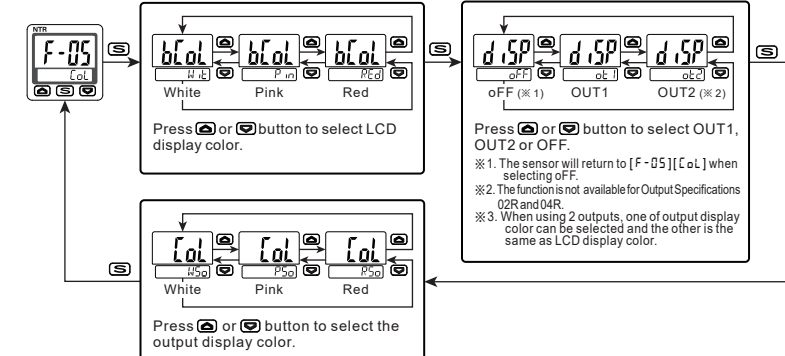
[F-04] OUT2 Setting

※ Not available for Output Specification 02R and 04R.



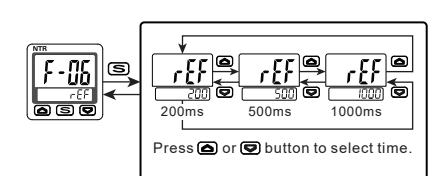
[F-05] LCD Display Color Setting

Press **[S]** or **[V]** button at Function Selection to [F-05] [CoL].



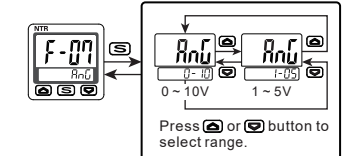
[F-06] Sampling Rate Setting

Press **[S]** or **[V]** button at Function Selection to [F-06] [rEF].



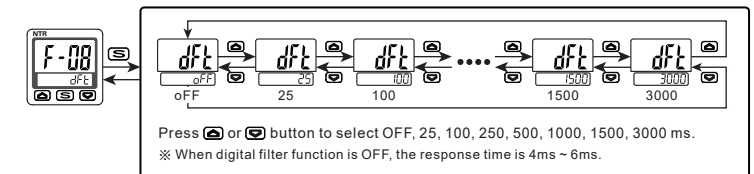
[F-07] Voltage Analog Output Range Setting

Press **[S]** or **[V]** button at Function Selection to [F-07] [RnG].



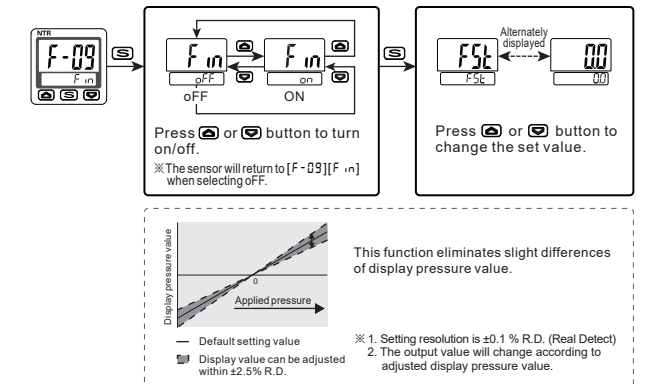
[F-08] Response Time of Digital Filter Setting

Press **[S]** or **[V]** button at Function Selection to [F-08] [dFt].



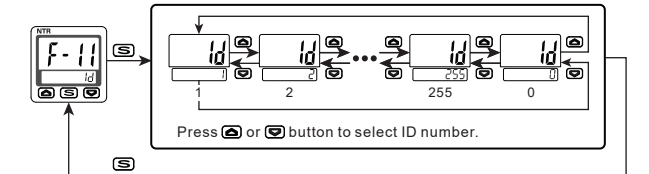
[F-09] Fine Adjustment Setting

Press **[S]** or **[V]** button at Function Selection to [F-09] [F n].



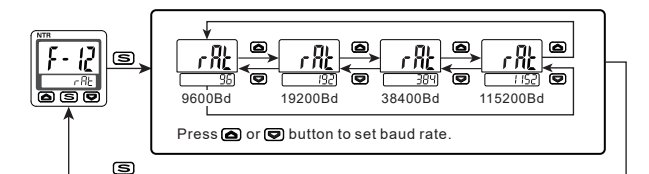
[F-11] RTU ID Number Setting

Press **[S]** or **[V]** button at Function Selection to [F-11] [Id].



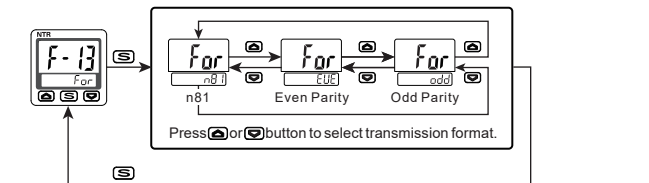
[F-12] RTU Baud Rate Setting

Press **[S]** or **[V]** button at Function Selection to [F-12] [rRt].



[F-13] RTU Transmission Format Setting

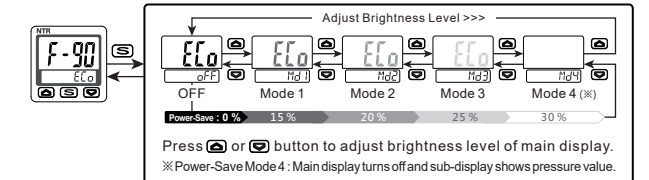
Press **[S]** or **[V]** button at Function Selection to [F-13] [For].



[F-90] Power-Save Mode Setting

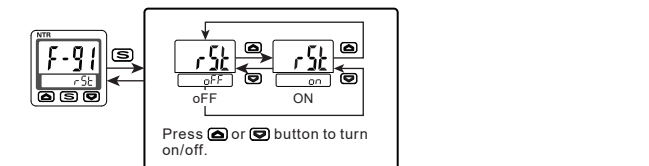
Press **[S]** or **[V]** button at Function Selection to [F-90] [ECa].

When Power-Save Mode turns on,
1. the main-display will be into the selected mode (Mode1 ~ 4), if no buttons are pressed after 30 seconds.
2. the output indicator may not sync, but the sensor still work functionally.
3. press any button back to measure mode.



[F-91] Default Setting

Press **[S]** or **[V]** button at Function Selection to [F-91] [rSt].



M. COMMUNICATION PROTOCOL (Modbus RTU)

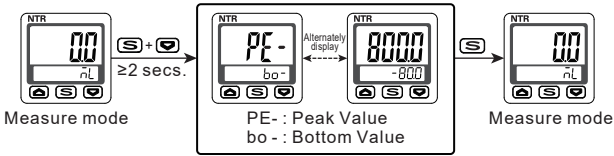
Function Code	Description	Operation
0000	ID Number (Range : 0 ~ 255)	Read Write
0001	Sensor type (1 : S01 , 2 : S02 , 3 : S03 , 4 : S04 , 5 : S05 , 6 : S06 , 7 : S07 , 8 : S08 , 9 : S09 , 10 : S10 , 11 : S11 , 12 : S12 , 13 : S13 , 14 : S14 , 15 : S15 , 16 : S16 , 17 : S17)	Read Write
0002	Pressure value (Range : -1999 ~ 15000)	Read
0003	Unit setting (0 : kPa , 1 : kgf/cm ² , 2 : bar , 3 : psi , 4 : inHg , 5 : mmHg , 7 : mmAq)	Read Write
0005	Switch output mode (0 : OPS , 1 : HYS , 2 : WIN)	Read Write
0006	Switch output mode (0 : NO , 1 : NC)	Read Write
0007	Response time of digital filter (0 : OFF , 1 : 25ms , 2 : 100ms , 3 : 250ms , 4 : 500ms , 5 : 1000ms , 6 : 1500ms , 7 : 3000ms)	Read Write
0008	Display color selection (0 : White , 1 : Red , 2 : Pink)	Read Write
0009	Hysteresis value (Range : 0 (1 digit) ~ 7 (8 digits))	Read Write
000A	Power-Save mode (0 : OFF , 1 : Mode 1 , 2 : Mode 2 , 3 : Mode 3 , 4 : Mode 4)	Read Write
000B	Fine adjustment (Range : -25 (-2.5%) ~ 25 (2.5%))	Read Write
000C	Baud rate (0 : 9600 bps , 1 : 19200 bps , 2 : 38400 bps , 3 : 115200 bps)	Read Write
000D	Transmission format (0 : n81 , 1 : Even , 2 : Odd)	Read Write
000E	Communications protocol (0 : RTU)	Read
000F	Reset to default setting (0 : ON)	Write
0010	Switch set point (P-1 or L-1) (Range : 0 ~ 10000 mV)	Read Write
0011	Switch set point (H-1) (Range : 0 ~ 10000 mV)	Read Write
0012	Switch output state (0 : OFF , 1 : ON)	Read
0013	Key lock/unlock mode (0 : Unlock , 1 : Lock)	Read Write
0014	Switch output type (0 : NPN , 1 : PNP)	Read
0015	Sampling rate (0 : 200ms , 1 : 500ms , 2 : 1000ms)	Read Write
0016	Zero point setting (0 : ON)	Write
0017	Sensor input (1 : 0 ~ 10V , 2 : 1 ~ 5V , 3 : 4 ~ 20mA)	Read Write
0018	LCD display color output selection (0 : OFF , 1 : OUT1)	Read Write
0019	Output LCD display color selection (0 : White , 1 : Red , 2 : Pink)	Read Write

O. ZERO POINT SETTING

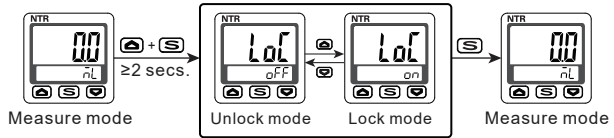
Press the  +  button at the same time until the "00" is shown.



P. PEAK/BOTTOM HOLD FUNCTION



Q. KEY LOCK/UNLOCK MODE



- Use key lock mode to prevent unauthorized or accidental tampering setting values.
- When lock mode is selected, panel will display " LoL ".

