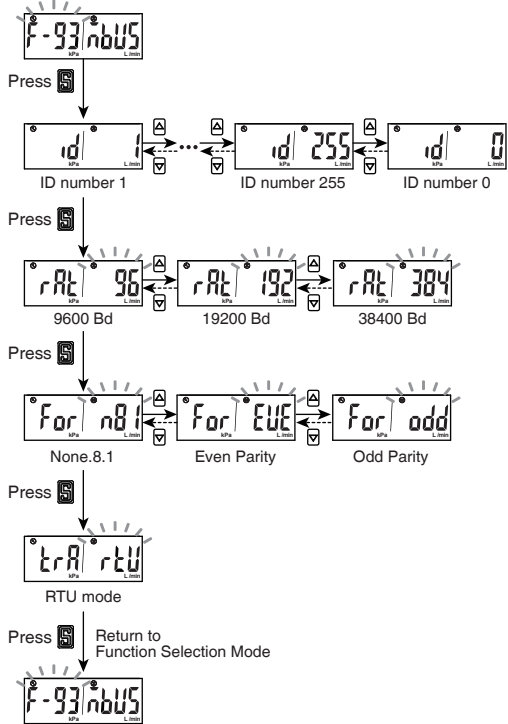


C. OPERATION INSTRUCTIONS

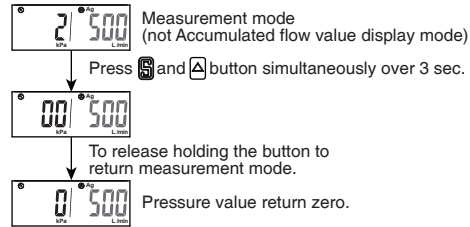
9 [F-93] Modbus RTU Setting

※ This function only available for RS485 (Output Specification -02 and -04).



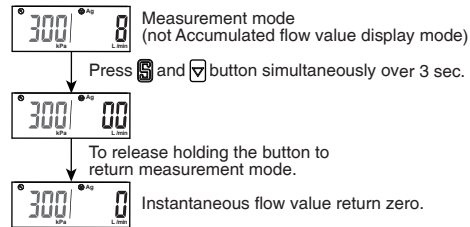
10 Pressure Zero Adjustment Function

The displayed value can be adjusted to "0" when the pressure is within $\pm 3\%$ F.S. of the zero point at the time of shipment from the factory.

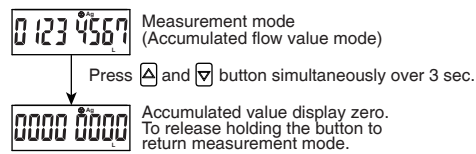


11 Instantaneous Flow Zero Adjustment Function

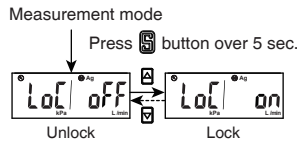
The displayed value can be adjusted to "0" when the measured flow is within $\pm 5\%$ F.S. of the zero point at the time of shipment from the factory.



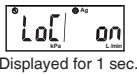
12 Reset Accumulated Flow Function



13 Key Lock Mode



※ NOTE : If a button operation is performed while the key lock setting is ON, [LoC][on] will displayed.



D. Modbus RTU INSTRUCTIONS

Function Code	Explanation	Operation
0000H	ID Number (0 ~ 255) Range : 0 ~ 255	Read Write
0001H	Baud rate setting 0 : 9600 bps 1 : 19200 bps 2 : 38400 bps	Read Write
0002H	Transmission format setting 0 : N.8.1 1 : E.8.1 2 : O.8.1	Read Write
0003H	Communications protocol setting 0 : RTU	Read Write
0004H	Measured flow rate range 7 : 500 L/min 8 : 1000 L/min 9 : 2000 L/min	Read
0005H	Instantaneous flow value	Read
0006H	Flow unit 0 : LPM (L/min or mL/min) 1 : CFM (ft³/min)	Read Write
0007H	Decimal place for flow value 0 : None 1 : One decimal place 0.1 2 : Two decimal places 0.01 3 : Three decimal places 0.001	Read
0008H	Accumulated flow value (ADL) XXXX 9999	Read
0009H	Accumulated flow value (ADH) 9999 XXXX	Read
000AH	Flow reference standard 0 : ANR (Standard condition) 1 : NOR (Normal condition)	Read Write
000BH	Flow sensor display mode 0 : Instantaneous flow 1 : Accumulated flow	Read Write
000CH	Accumulated value hold 0 : None 1 : 2min /times 2 : 5min/times	Read Write
000DH	Flow display refresh time 0 : 200ms 1 : 500ms 2 : 1000ms	Read Write
000EH	Rated pressure range 3 : -0.100 ~ 1.000 MPa	Read
000FH	Display pressure value	Read
0010H	Pressure unit 0 : kPa 1 : kgf/cm² 2 : bar 3 : psi	Read Write
0011H	Decimal place for pressure value 1 : One decimal place 0.1 2 : Two decimal places 0.01 3 : Three decimal places 0.001	Read
0012H	Pressure display refresh time 0 : 200ms 1 : 500ms 2 : 1000ms	Read Write
0013H	Fine adjustment setting 0 : OFF 1 : FLOW SENSOR 2 : PRESSURE SENSOR	Read Write

Function Code	Explanation	Operation
0014H	Fine adjustment of display value -25 ~ 25 (-2.5% ~ +2.5%)	Read Write
0015H	Response time of flow sensor 0 : 50ms 4 : 400ms 1 : 80ms 5 : 800ms 2 : 120ms 6 : 1500ms 3 : 200ms	Read Write
0016H	Response time of pressure sensor 0 : 2.5ms 4 : 500ms 1 : 25ms 5 : 1000ms 2 : 100ms 6 : 1500ms 3 : 250ms	Read Write
0017H	OUT1 corresponding sensor 0 : FLOW SENSOR 1 : PRESSURE SENSOR	Read Write
0018H	OUT1 output mode FLOW 0 : Hysteresis 1 : Window Comparator 2 : Accumulated Output 3 : Accumulated Pulse Output PRESSURE 0 : One Point Set 1 : Hysteresis 2 : Window Comparator	Read Write
0019H	OUT1 output type 0 : N.O. mode 1 : N.C. mode	Read Write
001AH	Flow setting value FL-1	Read Write
001BH	Flow setting value FH-1	Read Write
001CH	Flow setting value ADL1	Read Write
001DH	Flow setting value ADH1	Read Write
001EH	OUT1 fixed hysteresis setting for flow value HYS 1 ~ 8	Read Write
001FH	Pressure setting value P-1 or L-1	Read Write
0020H	Pressure setting value H-1	Read Write
0021H	OUT1 fixed hysteresis setting for pressure value HYS 1 ~ 8	Read Write
0022H	OUT1 switch 0 : OFF 1 : ON	Read
0023H	OUT2 corresponding sensor 0 : FLOW SENSOR 1 : PRESSURE SENSOR	Read Write
0024H	OUT2 output mode FLOW 0 : Hysteresis 1 : Window Comparator 2 : Accumulated Output PRESSURE 0 : One Point Set 1 : Hysteresis 2 : Window Comparator	Read Write
0025H	OUT2 output type 0 : N.O. mode 1 : N.C. mode	Read Write
0026H	Flow setting value FL-2	Read Write
0027H	Flow setting value FH-2	Read Write

Function Code	Explanation	Operation
0028H	Flow setting value ADL2	Read Write
0029H	Flow setting value ADH2	Read Write
002AH	OUT2 fixed hysteresis setting for flow value HYS 1 ~ 8	Read Write
002BH	Pressure setting value P-2 or L-2	Read Write
002CH	Pressure setting value H-2	Read Write
002DH	OUT2 fixed hysteresis setting for pressure value HYS 1 ~ 8	Read Write
002EH	OUT2 switch 0 : OFF 1 : ON	Read
002FH	Color display for OUT1 or OUT2 selection 0 : OUT1 1 : OUT2	Read Write
0030H	Display color setting 0 : SOG (Switch on Green) 1 : SOR (Switch on Red) 2 : GRN (Always is Green) 3 : RED (Always is Red)	Read Write
0031H	Power-save mode 0 : NO 1 : YES	Read Write
0032H	Reset to the default setting 0 : RECALL	Write
0033H	Instantaneous flow zero adjustment 0 : When over $\pm 5\%$ F.S., error code 03H will show.	Write
0034H	Pressure zero adjustment 0 : When over $\pm 3\%$ F.S., error code 03H will show.	Write
0035H	Reset accumulated flow 0 : Accumulated flow value return to zero	Write
0036H	Key lock/unlock setting 0 : OFF 1 : ON	Read Write
0037H	Switch output 0 : NPN 1 : PNP	Read

● Read / Write Code

Read/Write Code	Explanation
03H	Read pressure sensor data Range 1 ~ 4 data Number, 2 ~ 8 Bytes
06H	Write pressure sensor data

● Error Code Description

Error Code	Explanation
01H	Read / Write error
02H	Function Code error
03H	Illegal data or over setting value

E. FUNCTION INSTRUCTION

Function Code	Item	Explanation
[F - 01]	[oUt 1] OUT 1 setting	Select Output 1 corresponding to flow sensor or pressure sensor. Set the flow rate or pressure value to switch ON/OFF.
[F - 02]	[oUt 2] OUT 2 setting	Select Output 2 corresponding to flow sensor or pressure sensor. Set the flow rate or pressure value to switch ON/OFF.
[F - 03]	[CLor] LCD Display color setting	Select back light color and display mode.
[F - 04]	[rESP] Response time setting	Select the response time for analog output. Pressure sensor: 2.5ms ~ 1500ms. Flow sensor: 50ms ~ 1500ms.
[F - 05]	[UPdR] Display refresh time setting	Display refresh cycle can be set in 200ms, 500ms or 1000ms.
[F - 06]	[Un .c] Unit setting	Select the UNIT of pressure / flow sensor.
[F - 07]	[rEFE] Flow reference standard setting	Select the flow value is shown under standard (ANR) or normal condition (NOR).
[F - 08]	[RnG] Analog output setting	Select the analog corresponding to pressure or flow sensor. (※1)
[F - 09]	[EEP-] Accumulated value hold setting	To save the last accumulated flow value every 2 or 5 minutes.
[F - 10]	[d .s] Flow sensor display mode setting	Select to display Instantaneous Flow or Accumulated Flow Mode.
[F - 80]	[SIn] Sync the value of flow analog output and display	Turn ON to synchronize the value of flow analog output and display. (※1) (※3) (Default setting : OFF)
[F - 90]	[RoUt] Analog output range setting	Select analog output corresponding to flow sensor or pressure sensor. (※1)
[F - 91]	[ECo] Power-Save mode setting	Select if turn on power-save mode to reduce power consumption
[F - 92]	[.nP] External input setting	Select for Accumulated flow rate zero clear, Auto-Shift or Auto-Shift zero. (※1)
[F - 93]	[nbus] Modbus RTU setting	Set ID number, baud rate and transmission format. (※2)
[F - 94]	[F .nE] Fine adjustment setting	The displayed value can be adjusted slightly.
[F - 95]	[FoUt] Forced output function	To force output ON/OFF to test the switch function.
[F - 99]	[rESet] Reset to the default setting	Return to the factory default setting.

※ Note :
1. This function is not available with RS485 (Output Specification -02 and -04).
2. This function only available for RS485 (Output Specification -02 and -04).
3. This function is available for output of flow rate only.

F. ERROR CODE INSTRUCTION

Error Type	Error Code	Error Condition	Troubleshooting
OUT1 Excess Load Current Error	800 Er1 Er1 200	Output 1 load current is more than 125 mA.	Turn power off and check the cause of overload current or lower the current load under 125 mA, then restart.
OUT2 Excess Load Current Error	800 Er2 Er2 200	Output 2 load current is more than 125 mA.	Turn power off and check the cause of overload current or lower the current load under 125 mA, then restart.
Zero Adjustment Error	800 Er3 Er3 200	The instantaneous flow is over $\pm 5\%$ F.S. of the zero point. The pressure value is over $\pm 3\%$ F.S. of the zero point.	Perform the zero clear function again under no flow conditions. Perform the zero clear function again under no pressure conditions.
System Error	Er4 Er4 Er5 Er5 Er6 Er6 Er7 Er7	Memory error Internal data error Internal data error System parameter error	Turn power off, and then restart. If error condition remains, please return to factory for inspection.
Applied Flow/ Pressure Error	800 HHH HHH 200 800 LLL LLL 200	The instantaneous flow has exceeded the upper limit of the flow display range. The pressure has exceeded the upper limit of the pressure display range. The instantaneous flow has exceeded the lower limit of the flow display range. The pressure has exceeded the lower limit of the pressure display range.	Reduce the flow to the display range. Reduce the pressure to the display range. Ensure the flow is in the correct direction. Increase the pressure to the display range.