OVAL INSTRUCTIONS

Ins. No. E-026-4-E

SMART COMMUNICATION UNIT

MODEL : EL2310-0DE□□□

Applicable Flowmeter: Ultrasonic Flowmeter for Liquid

Psonic-L4

For the installation of application software "LinkTop" and the interface driver, refer to Ins. No. E-020IMC "Smart Communication Unit MODEL: EL2310 Software Installation Procedure Manual".

CONTENTS

This manual uses the precaution words "NOTE", "CAUTION", and "WARNING" as explained below:

➡ NOTE: Notes are separated from the general text to bring the user's attention to important information.

⚠ **CAUTION: Caution statements inform the user of hazards or unsafe practices which could result in minor personal injury or product/property damage.**

⚠ **WARNING: Warning statements inform the user of hazards or unsafe practices which could result in severe personal injury or death.**

1. SMART COMMUNICATION UNIT

1.1 General

Described in this manual are the operating instructions to use the application software LinkTop® of the Smart Communication Unit which operates in the Microsoft operating system Windows® environment.
LinkTop® is a communication terminal designed for use in combination with a personal computer (hereinafter referred to as PC) and any one of the OVAL ultrasonic flowmeters to set up, alter, adjust, or read out parameters and variables, through interactive communications, either on-site or from remote locations.
Using a Windows® PC at hand, it is possible to monitor multiple windows on its screen.

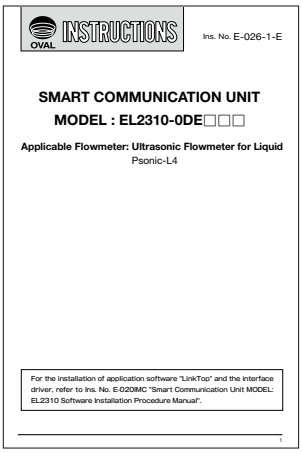
It is necessary to install the application software LinkTop® in your PC before connecting the communication interface (*) between the PC and the flowmeter.
➡ NOTE: In case of Bell202 communication: Bell202 communication interface of OVAL smart communication unit EL2310 is necessary.

2. BEFORE YOU BEGIN

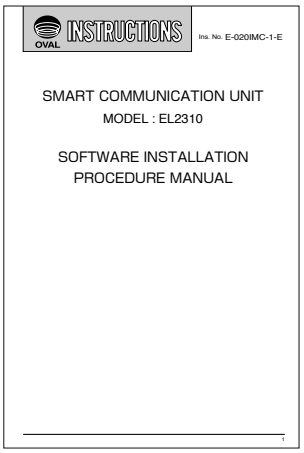
2.1 Inspection upon Receipt

Be sure you have the following items.
Open the product package and make sure you have all the components required.

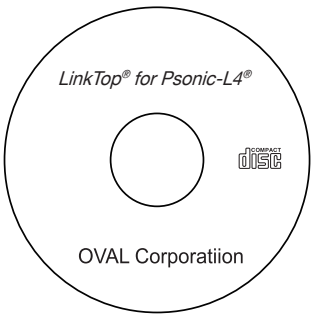
Instruction Manual 1
(This manual)



Instruction Manual 2
(Software Installation Procedure Manual)



CD-ROM
(Application software LinkTop®)

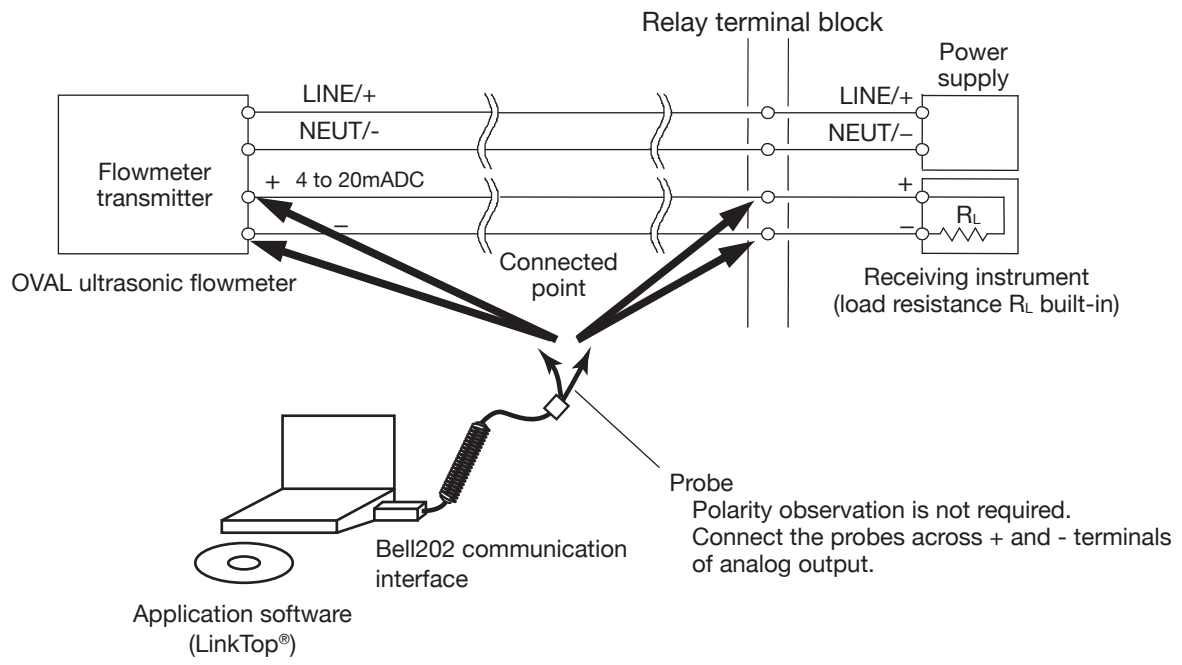


Communication interface
(in case of product with interface)
(for Bell202 communication Fig. 2-2)

➡ NOTE: For the installation of the application software "LinkTop®" and the interface driver software (*), refer to "Installation Procedure Manual".
*: The driver software in the CD-ROM is intended for an application of Bell202 Communication Interface for OVAL Smart Communication Unit EL2310.

2.2 Hookup with Associated Equipment and Devices

Equipment set-up with associated equipment and devices is shown in Fig. 2-1. (Prepare a PC by yourself.)



The receiving instrument in this figure requires a load resistance 250Ω min. Its upper limit depends on the specification of the transmitter in use.
If the receiving instrument does not have a built-in R_L, an external R_L needs to be connected in series.

Fig. 2-1

- Procedure of connection -

(1) Connect the cables as shown in Fig. 2-1.
(2) Turn ON the power supply of PC and activate LinkTop for Psonic-L4.
(3) Turn ON the power supply of flowmeter.

* Before connecting the communication cable to the flowmeter transmitter, turn OFF the power supply of flowmeter.

➡ NOTE: In Fig. 2-1, the customer is to supply a PC that meets the following requirements:

- ◇ OS: Windows XP, Windows Vista, Windows 7 to 11
- ◇ RAM: 256MB or larger
- ◇ Hard disk: 10MB or larger free space
- ◇ USB port that is suitable for connecting to the communication interface to be used shall be provided. A USB port is required when using Bell202 communication interface for OVAL Smart Communication Unit EL2310.

2.3 Communication Interface

A signal transmitter is provided for the communication signal conversion between the external serial port (COM port) of the PC and the flowmeter.
When using Bell202 communication, the Bell202 communication interface for OVAL smart communication unit EL2310 shall be used. The signal transmitter consists of the components shown in Fig. 2-2.

Unit: mm

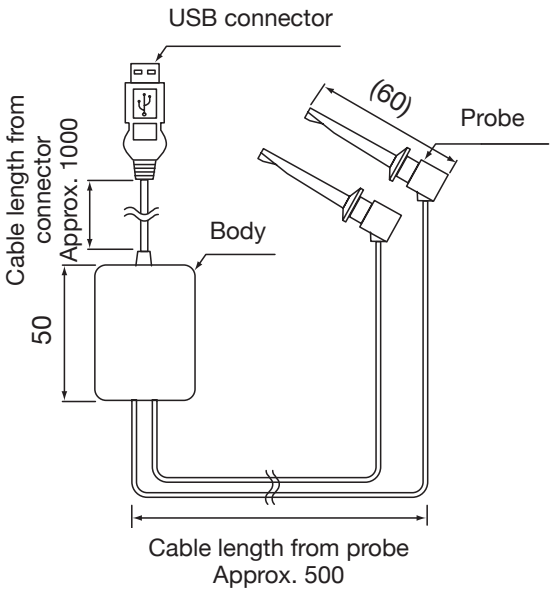


Fig. 2-2

3. LinkTop OPERATION

3.1 LinkTop Screen

(1) Fig. 3-1 shows what the LinkTop window looks like.

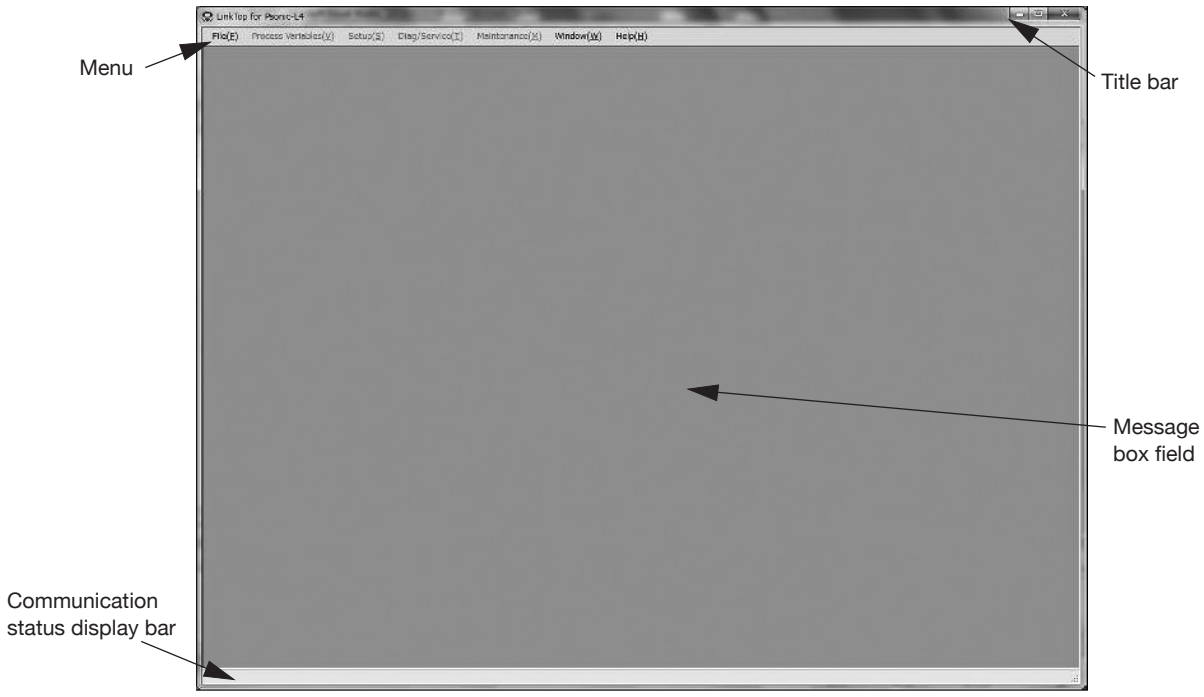


Fig. 3-1

(2) "Communication status display bar" displays the communication status of PC and flowmeter. The description on "communication status display bar" is shown in the table below.

Display item	Details
SEND	At communications (when sending data)
RECV WAIT	At communications (when waiting for receiving data)
IDLE	When communications are interrupted
CLOSE	When communications are disconnected

(3) The overview of each menu is shown in the table below.

Display item	Details
File	Setting of communication connection and construction of database (refer to section 3)
Process Variables	Checks the measurement status with numeric values (refer to section 3.5)
Setup	Sets the transmitter parameter(refer to section 3.6)
Diag / Service	Check and adjustment of transmitter (refer to section 3.7)
Maintenance	Reset of transmitter (refer to section 3.8)
Window	Arrays displayed windows (refer to section 3.9)

3.2 Starting LinkTop and Connections

3.2.1 Starting LinkTop

(1) To initiate LinkTop, click "Start" at the bottom left of the PC screen, and then click "LinkTop for Psonic-L4 (E) Ver1.0.0" in "Program".

(2) The following window (Fig. 3-2) will be displayed and it is possible to verify the version of the software.

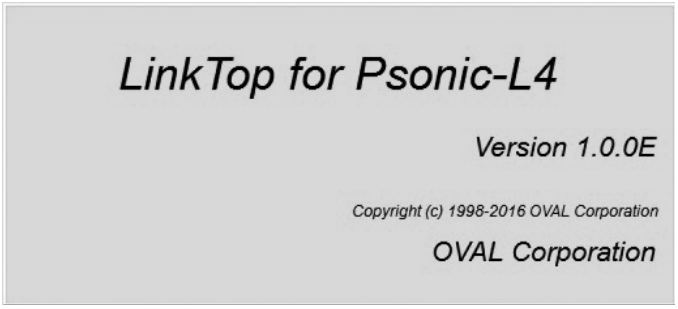


Fig. 3-2

(3) After the window shown in Fig. 3-2 is displayed for a few seconds, the main window (Fig. 3-3) will be displayed.

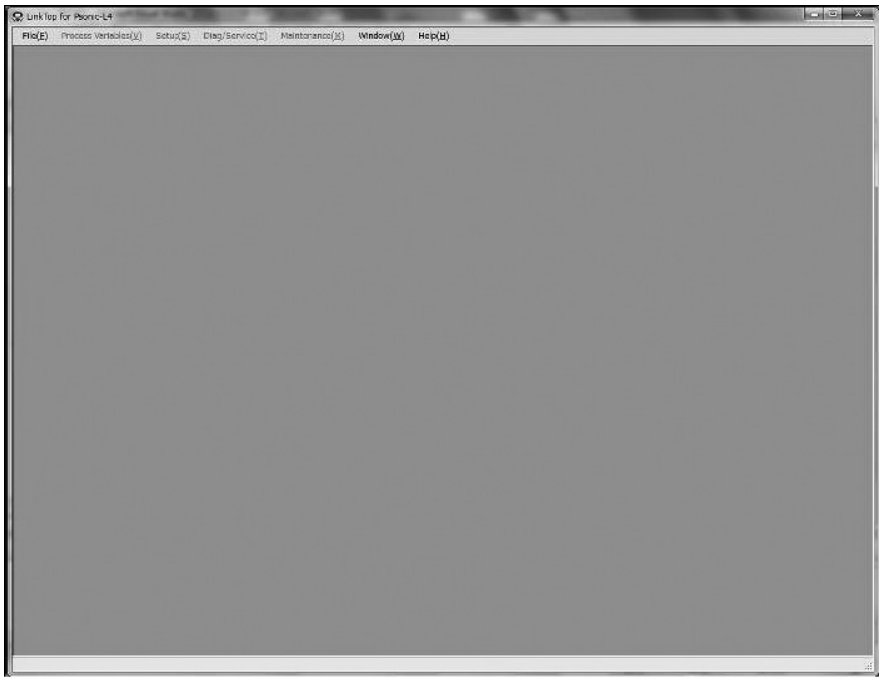


Fig. 3-3

3.2.2 Port Setting

It is possible to change the setting of serial port of PC.

(1) Click "File (F)" from the menu, and then click on "Port Setting (I) Ctrl+I".

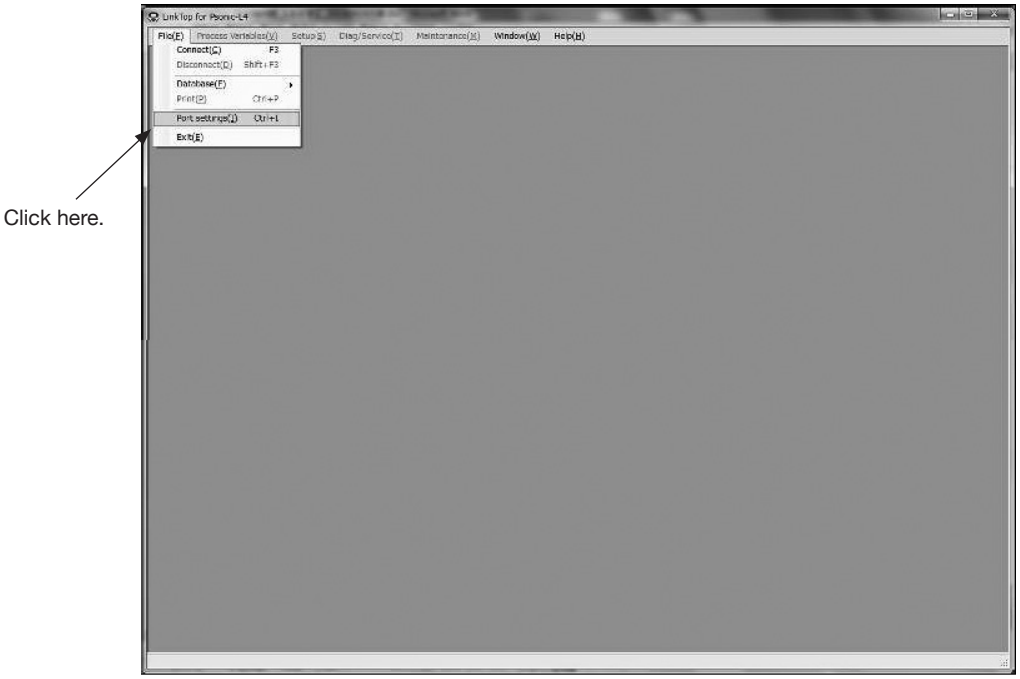


Fig. 3-4

(2) The following window (Fig. 3-5) will be displayed. Here, select the serial port of PC.

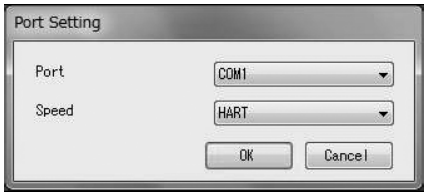


Fig. 3-5

(3) Click the arrow on right side as shown in Fig. 3-6, and select the port for which connection is changed from the drop-down list.
It is possible to check whether the port is connected or not with the device manager screen shown in Fig. 3-7.

Fig. 3-6

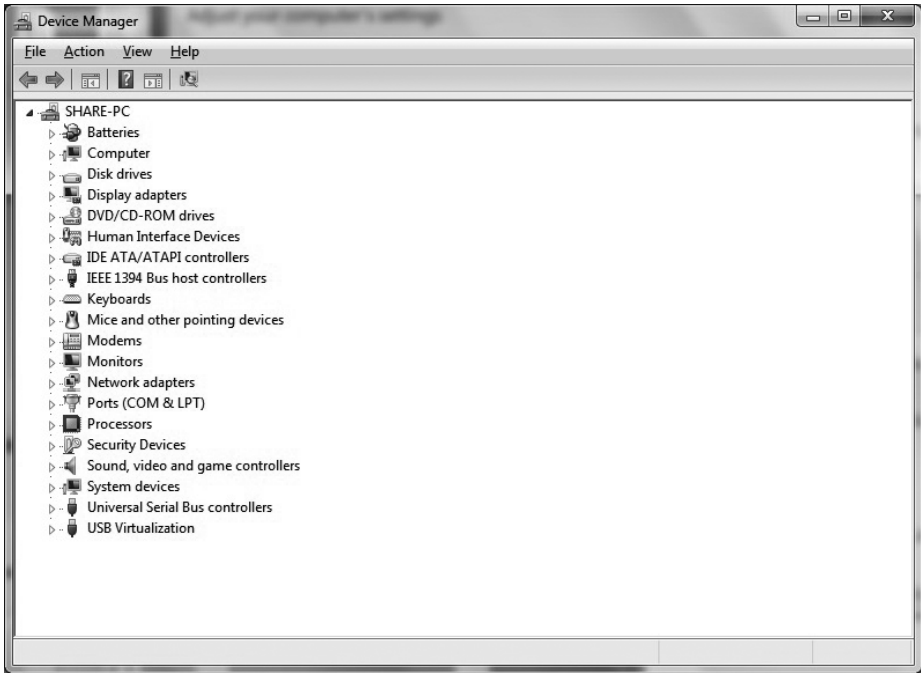


Fig. 3-7

(4) After the selection is completed, click "OK" button. After clicking the button, the value will be changed to the setting value you select and the window will disappear.
If you want to cancel the setting, click "Cancel" button.

(5) The standard setting is "COM1".

* When USB serial port is used, select "COM (port number) (USB)".
* When USB serial port is used, set up the included driver preliminarily and use it in connectable status.

(6) For the setting of communication speed, select "HART".

3.2.3 Connection

(1) Click "File (F)" from the menu, and then click on "Connect (C) F3".

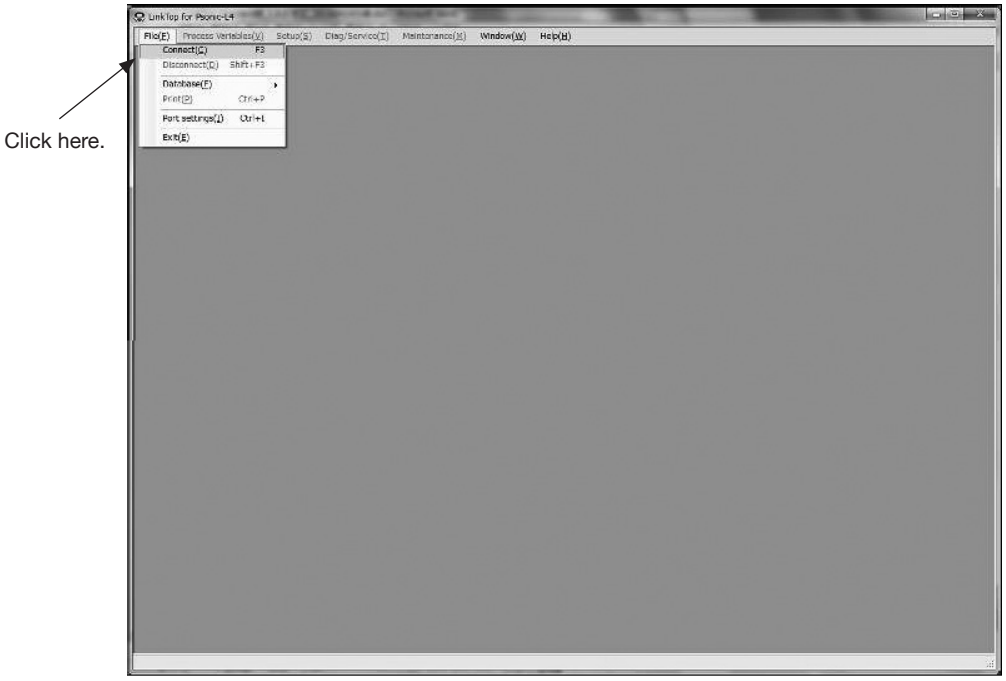


Fig. 3-8

(2) The message box (Fig. 3-9) will be displayed. By clicking "OK" button, the connection will be started. By clicking "Cancel" button, the connection operation will be cancelled.
The polling address is set to "0" when the product is shipped from factory.

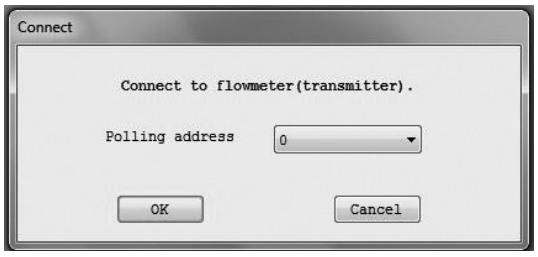


Fig. 3-9

(3) Click "OK" button in the message box to start the connection. Then, the following window (Fig. 3-10) will be displayed. It is possible to check the connection status with the progress bar in the center of window.

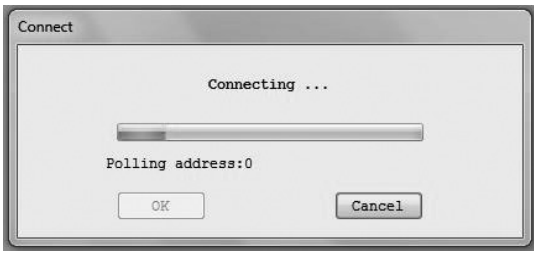


Fig. 3-10

The display of "communication status display bar" switches between "SEND" and "RECV WAIT". By clicking "Cancel" button, the connection will be cancelled.

(4) If the connection is completed, the following message box (Fig. 3-11) will be displayed. Click "OK" button.

Fig. 3-11

(5) When the connection is completed, some functions of the menu will become selectable (color of characters will change to black) as shown in Fig. 3-12.

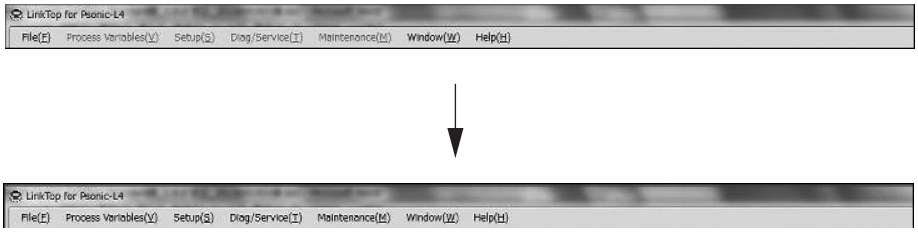


Fig. 3-12

3.3 Terminating the Connection

To terminate connection between the flowmeter transmitter and LinkTop, follow the procedure given below:

(1) Click "File (F)" from the menu, and then click on "Disconnect (D) Shift+F3".

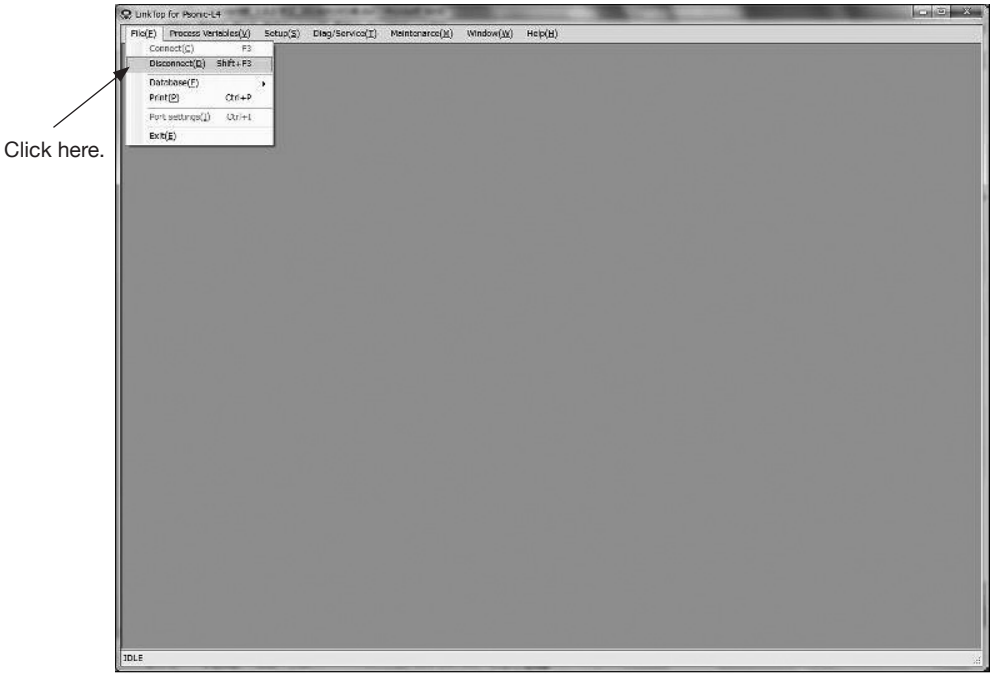


Fig. 3-13

(2) The message box (Fig. 3-14) will be displayed. By clicking "OK" button, the connection between flowmeter and LinkTop will be terminated.
By clicking "Cancel" button, the connection termination operation will be cancelled.

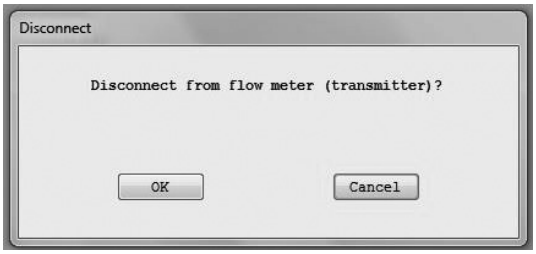


Fig. 3-14

(3) When connection is terminated, some functions of the menu become inactive (characters will change to white) as shown in Fig. 3-15.

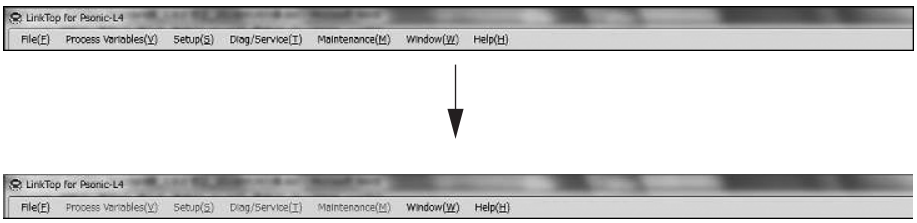


Fig. 3-15

3.4 Terminating LinkTop

(1) To exit LinkTop, click "File (F)" from the menu and select "Exit (E)" or click "Close" button in the upper right of the screen.

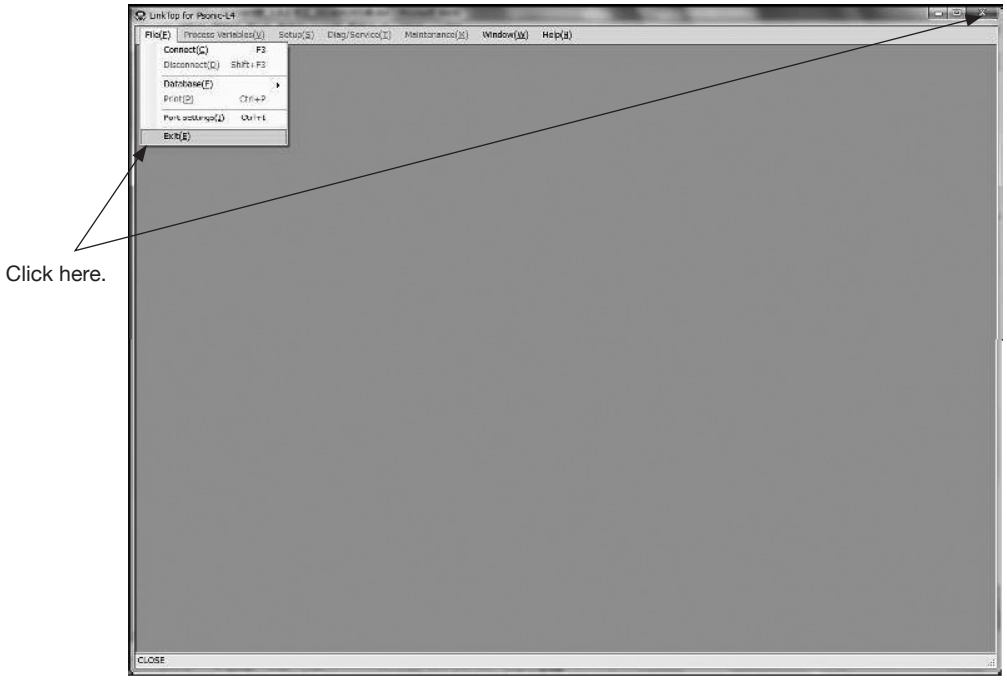


Fig. 3-16

(2) The message box (Fig. 3-17) will be displayed. To exit LinkTop, click "OK" button. Click "OK" to confirm and the application software window will disappear from the desktop. To abort the terminating process, click on "Cancel" button.

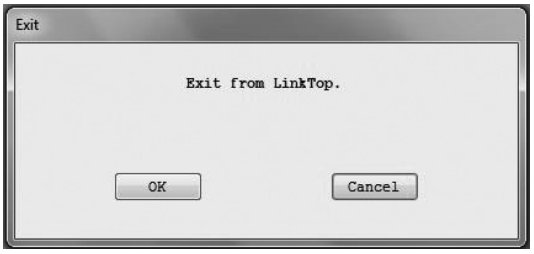


Fig. 3-17

3.5 Menu: Process Variables (processing values display)

The "Process Variables" menu can be used to confirm process value of flowmeter (instantaneous flow rate, flow velocity, cumulative total in positive direction, cumulative total in opposite direction, analog output, Gain1 to 4), chart display, logging, and status of write protect.
Fig. 3-18 shows what the actual screen looks like.

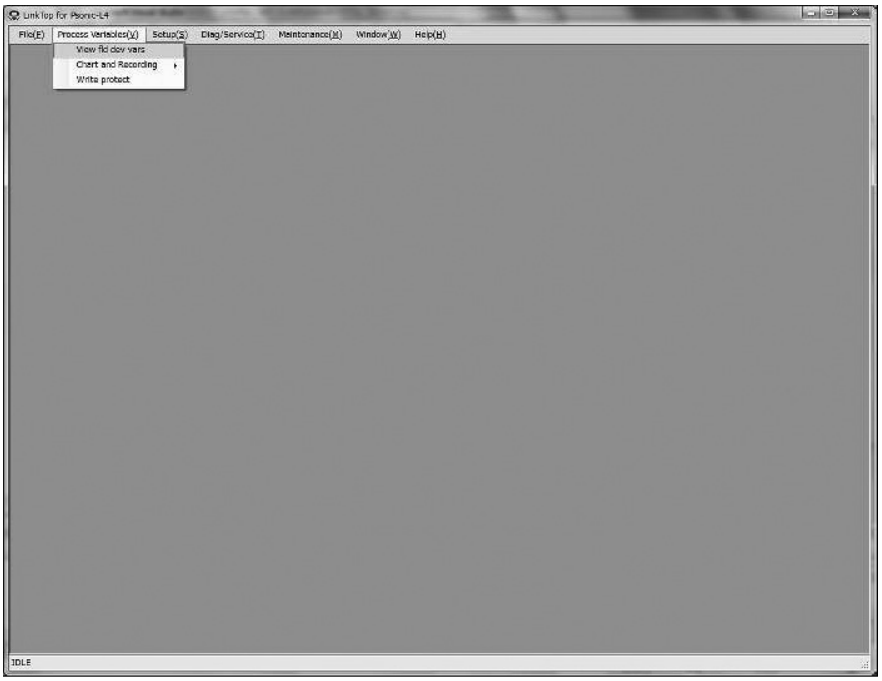


Fig. 3-18

3.5.1 View fld dev vars (processing values measurement)

(1) Click "Process Variables (V)" from the menu in the upper prat of the screen, and then click on "View fld dev vars".

(2) The following window (Fig. 3-19) will be displayed.

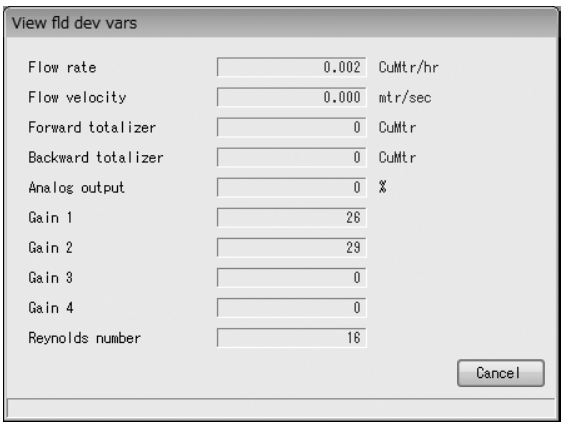


Fig. 3-19

"Flow rate" ... instantaneous flow rate
"Flow velocity" ... flow velocity
"Forward totalizer" ... cumulative total (positive direction)
"Backward totalizer" ... cumulative total (opposite direction)
"Analog output" ... analog % flow rate
"Gain 1" ... gain value (pass 1)
"Gain 2" ... gain value (pass 2)
"Gain 3" ... gain value (pass 3)
"Gain 4" ... gain value (pass 4)
"Reynolds number" ... Reynolds number

(3) If there is a problem with the flowmeter transmitter, then an error message will be displayed in the window under the process value measurement window. For details, refer to section 3.11.4 "Error, Status Display List".

(4) To exit the process value measurement window, click "Cancel" button.

3.5.2 Chart and Recording (chart display and logging)

Display of flow rate, flow velocity, gain value of sensor as well as data logging can be carried out.

(1) Click "Chart and Recording" from the menu in the upper part of the screen, and select "Active", then a tool bar as shown in Fig. 3-20 will be displayed underneath the menu.

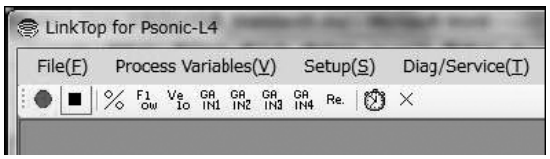


Fig. 3-20

(2) Click the button on the tool bar or "Chart and Recording" - "Interval" from the menu, then the window shown in Fig. 3-21 will be displayed, enabling setting of update interval of chart display and logging interval.
Select the preferred interval from "1 Second", "3 Second", "5 Second", "10 Second", "30 Second", "1 Minute", "5 Minutes", "10 Minutes", and "1 Hour" and click "OK" button.

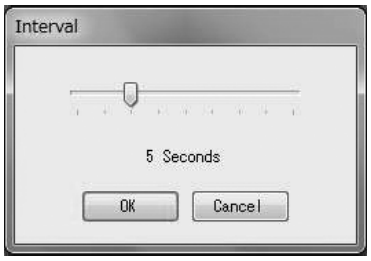


Fig. 3-21

(3) Click the % button on the tool bar or "Chart and Recording" - "Chart" - "Percent Flow" from the menu, then the window shown in Fig. 3-22 will be displayed, enabling chart display of percent flow. When changing the scale of the vertical axis, enter the preferred values to "Max" and "Min" in "Scale", then click "OK" button.

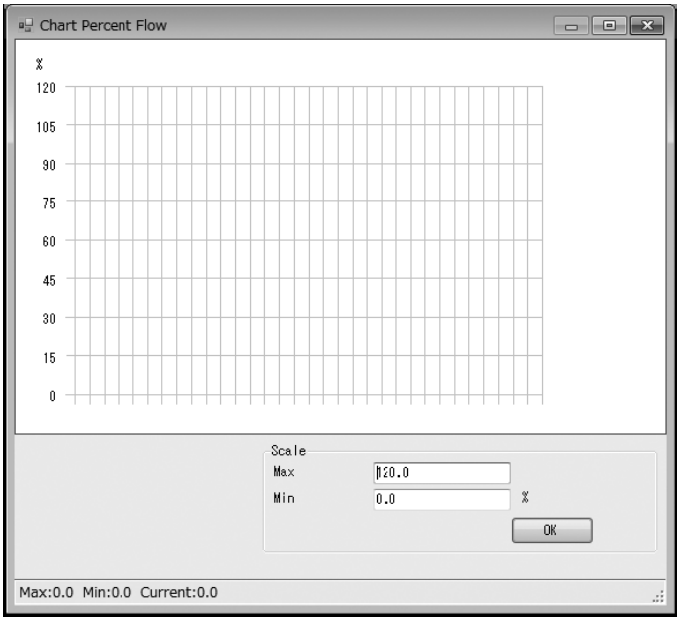


Fig. 3-22

(4) A chart is drawn at the intervals of update set in (2).

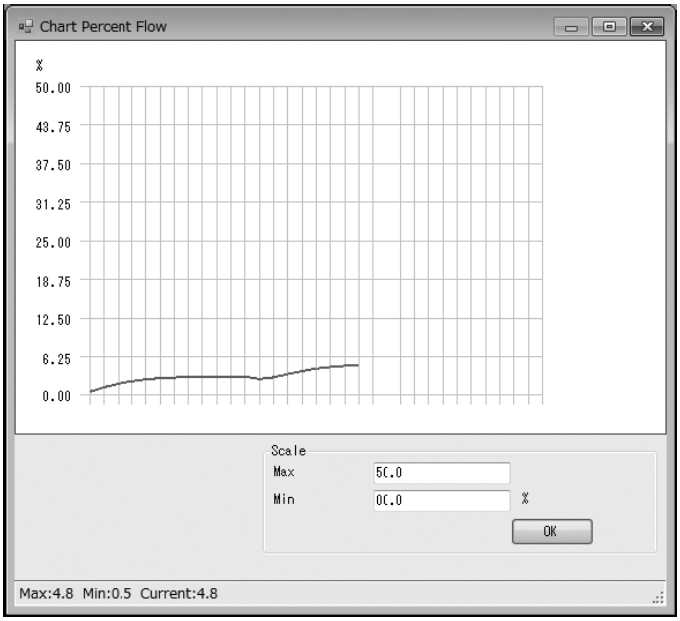


Fig. 3-23

(5) To hide the chart, click the % button on the tool bar or "Chart and Recording" - "Chart" - "Percent Flow" from the menu.

(6) Similarly, by clicking the Fl ow button on the tool bar or "Chart and Recording" - "Chart" - "Flow Rate" from the menu, instantaneous flow rate can be shown or hidden. If you click the Ve lo button on the tool bar or "Chart and Recording" - "Chart" - "Flow Velocity" from the menu, the flow velocity chart can be shown or hidden as well. The gain value (passes 1 to 4) and Reynolds number are operated in a same way.

(7) If you click the ● button on the tool bar or "Chart and Recording" - "Recording" - "Start" from the menu, the following dialog box (Fig. 3-24) will be displayed. Select the disk and folder to create a file, enter a file name, and click "Save (S)" button.
A CSV file is created and data logging begins.

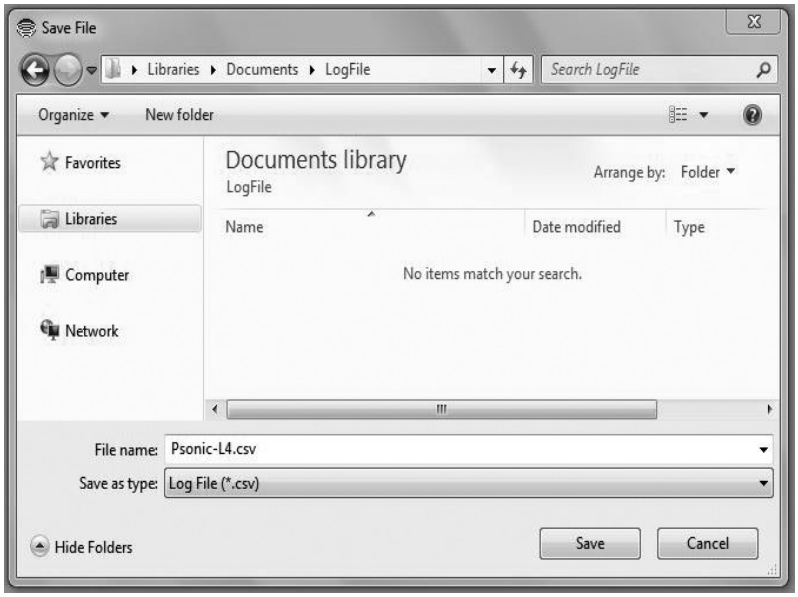


Fig. 3-24

(8) If you click the ■ button on the tool bar or "Chart and Recording" - "Recording" - "Stop" from the menu, the logging will stop (terminating the writing process on the file) and the file will be completed. Then the following message box (Fig. 3-25) will be displayed. Click "OK" button.

Fig. 3-25

(9) The content of the log file when logging interval is set to "5 Seconds" is as shown in Fig. 3-26.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	2016/7/12 16:12	0	%	0.002	CuMtr/hr	0	mtr/sec	93	26	29	0	0		
2	2016/7/12 16:12	0	%	0.004	CuMtr/hr	0	mtr/sec	209	27	30	0	0		
3	2016/7/12 16:13	0	%	0.004	CuMtr/hr	0	mtr/sec	66	26	29	0	0		
4	2016/7/12 16:13	0	%	0.004	CuMtr/hr	0	mtr/sec	19	27	30	0	0		
5	2016/7/12 16:13	0	%	0.004	CuMtr/hr	0	mtr/sec	63	27	30	0	0		
6	2016/7/12 16:13	0	%	0.002	CuMtr/hr	0	mtr/sec	89	27	30	0	0		
7	2016/7/12 16:13	0.8	%	33.333	CuMtr/hr	1.25	mtr/sec	182120	27	30	0	0		
8	2016/7/12 16:13	2.1	%	47.175	CuMtr/hr	1.77	mtr/sec	182120	27	30	0	0		
9	2016/7/12 16:13	3.3	%	54.078	CuMtr/hr	2.029	mtr/sec	182120	26	29	0	0		
10	2016/7/12 16:13	4.2	%	57.275	CuMtr/hr	2.149	mtr/sec	182120	26	29	0	0		
11	2016/7/12 16:13	4.2	%	57.275	CuMtr/hr	2.149	mtr/sec	182120	26	29	0	0		
12	2016/7/12 16:13	5.4	%	59.294	CuMtr/hr	2.224	mtr/sec	182120	26	29	0	0		
13	2016/7/12 16:13	5.6	%	59.616	CuMtr/hr	2.236	mtr/sec	182120	26	29	0	0		
14	2016/7/12 16:13	5.7	%	59.773	CuMtr/hr	2.242	mtr/sec	182120	26	29	0	0		
15	2016/7/12 16:14	5.8	%	59.838	CuMtr/hr	2.245	mtr/sec	182120	26	29	0	0		
16	2016/7/12 16:14	5.9	%	59.869	CuMtr/hr	2.246	mtr/sec	182120	27	30	0	0		
17	2016/7/12 16:14	5.9	%	59.883	CuMtr/hr	2.246	mtr/sec	182120	27	30	0	0		
18	2016/7/12 16:14	6	%	59.889	CuMtr/hr	2.247	mtr/sec	182120	27	30	0	0		
19	2016/7/12 16:14	6	%	59.892	CuMtr/hr	2.247	mtr/sec	182120	26	29	0	0		
20	2016/7/12 16:14	6	%	59.893	CuMtr/hr	2.247	mtr/sec	182120	27	30	0	0		
21	2016/7/12 16:14	6	%	59.893	CuMtr/hr	2.247	mtr/sec	182120	27	30	0	0		
22	2016/7/12 16:14	5.7	%	38.979	CuMtr/hr	1.462	mtr/sec	129	26	29	0	0		
23														
24														
25														
26														
27														
28														
29														

Date Percent flow Flow rate Flow velocity Reynolds number Gain 1 Gain 2 Gain 3 Gain 4

Fig. 3-26

(10) If you click the ⊠ button on the tool bar or "Chart and Recording" - "Active" from the menu, chart display and data logging will be terminated.

3.5.3 Write protect (write status display of transmitter)

Whether the parameter of transmitter can be changed or not is displayed.

(1) Click "Process Variables(V)" in the upper part of the screen, and then click on "Write protect". Then, the following window (Fig. 3-27) will be displayed.

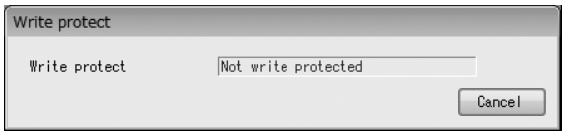


Fig. 3-27

"Write protect" shows whether parameter change of the transmitter is available or not.

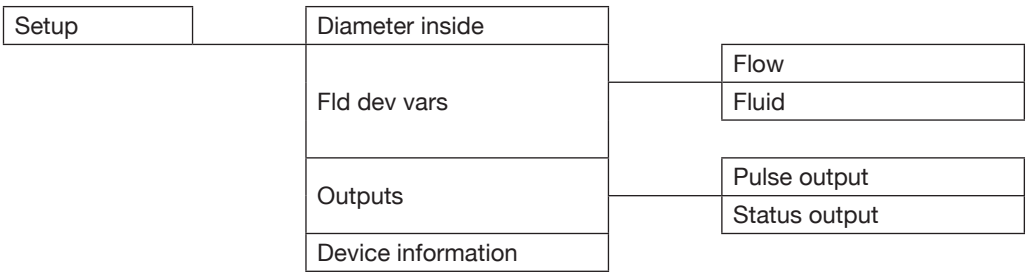
Mode	Detail	SW (S1-LCK) setting
Not write protected	Enables changing and setting parameters.	OFF
Write protected	Disables changing and setting parameters.	ON

➡ NOTE: Selecting the above mode is available by changing switches S1-LCK on the CPU board of the flowmeter transmitter.

(2) To exit this procedure, click "Cancel" button.

3.6 Menu: Setup (settings)

The "Setup" menu can be used to set flowmeter's various parameter values, transmitter's information, and so on.
If windows of "Diag/Service" menu are displayed on the screen, then it will not be possible to set the various parameters, transmitter information, and so on. Close these windows before making settings.
For the actual screen, refer to Fig. 3-28.



Setup Item Tree

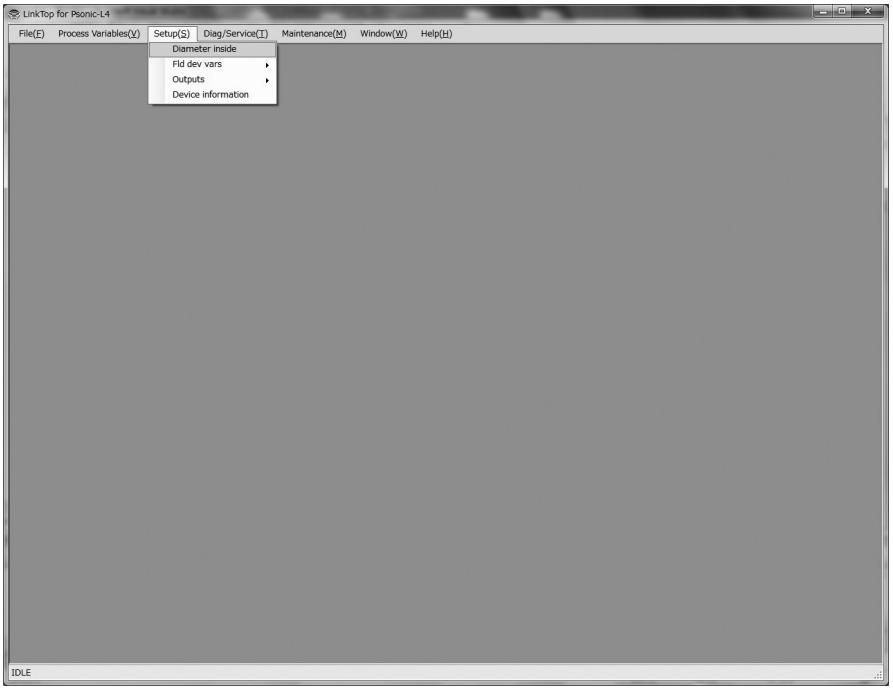


Fig. 3-28

3.6.1 Diameter inside (internal diameter of measuring tube)

(1) Click "Setup (S)" from the menu, and then click on "Diameter inside".

(2) The following window (Fig. 3-29) will be displayed. Here, it is possible to check the internal diameter of measuring tube.

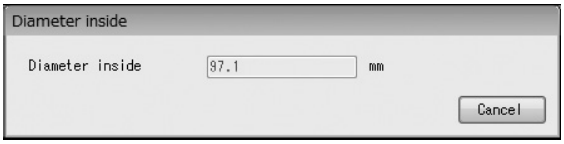


Fig. 3-29

(3) After the confirmation is completed, click "Cancel" button to close the item window.

3.6.2 Fld dev vars (transmitter variable)

3.6.2.1 Flow (parameter setting related to flow rate)

(1) Click "Setup (S)" from the menu, and then click on "Flow" from the drop-down list of "Fld dev vars".

(2) The following window (Fig. 3-30) will be displayed.

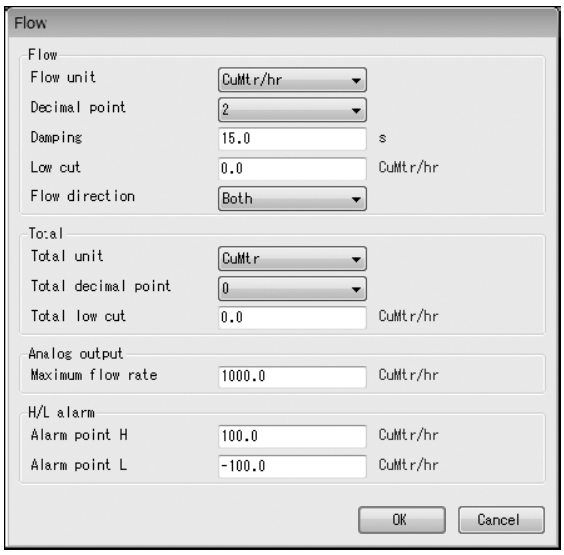


Fig. 3-30

(3) Select each item and enter a value. To change the unit, it is also necessary to change the value of low-cut and so on.

Setting item	Detail	Setting range
Flow unit	Unit of instantaneous flow rate	CuMtr/day, CuMtr/hr, CuMtr/min, CuMtr/sec, liter/hr, liter/min, liter/sec, CuFt/day, CuFt/hr, CuFt/min, CuFt/sec, gal/day, gal/hr, gal/min, gal/sec, ImpGal/day, ImpGal/hr, ImpGal/min, ImpGal/sec, bbl/day, bbl/hr, bbl/min, bbl/sec, g/hr, g/min, g/sec, kg/hr, kg/min, kg/sec, MetTon/day, MetTon/hr, MetTon/min, ShTon/day, ShTon/hr, ShTon/min, LTon/day, LTon/hr, lb/day, lb/hr, lb/min, lb/sec, special
Decimal point	Decimal point position of instantaneous flow rate	0 to 3
Damping	Damping (instantaneous flow rate / analog output)	0.0 to 120.0sec
Low cut	Low-cut (instantaneous flow rate / analog output)	0.0 to 9999.0 (flow rate setting unit)
Flow direction	Inflow direction (measurement mode)	Forward Flow, Reverse Flow, Both
Total unit	Totalization unit	liter, hliter, CuMtr, CuIn, CuFt, gal, ImpGal, bbl, g, kg, MetTon, ShTon, LTon, lb, special
Total decimal point	Pulse weight (decimal point position of Totalization unit)	0 to 3
Total low cut	Low-cut (for Totalization)	0.0 to 9999.0 (flow rate setting unit)
Maximum flow rate	Full-scale flow rate	0.0 to 9999.0 (flow rate setting unit)
Alarm point H	Upper limit alarm value	-9999 to 9999 (flow rate setting unit)
Alarm point L	Lower limit alarm value	-9999 to 9999 (flow rate setting unit)

(4) If all settings are completed, click "OK" button. Then, the message box (Fig. 3-31) will be displayed. Click "OK" button here to change the settings to the inputted values, and to reflect the changed setting values in the flowmeter's output. If the flowmeter's output is used to control valves or other such parts as safety protocol, change the control loop to manual control so that the control loop cannot be influenced by the flowmeter's output.

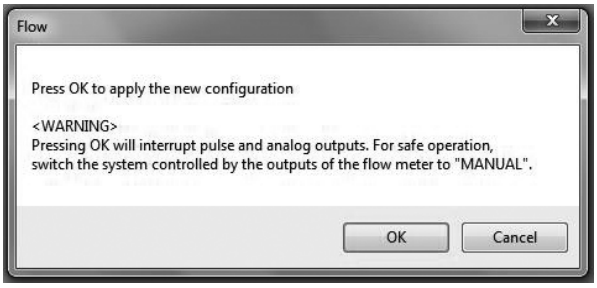


Fig. 3-31

Click "OK" button. If the value is changed to the selected setting value, the message box (Fig. 3-32) will be displayed. Click "OK" button to complete the setting.

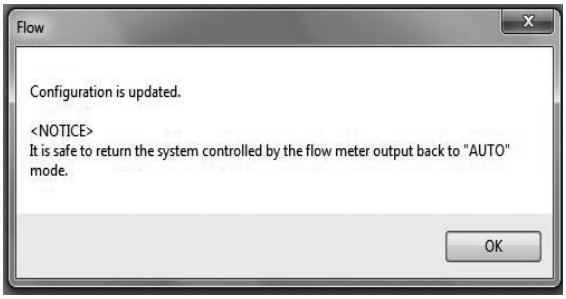


Fig. 3-32

(6) After clicking "OK" button, the window will return to the window for inputting the item. Click "Cancel" button to close the window for inputting the item.
To cancel the setting, click "Cancel" button during the steps (2) to (4).

3.6.2.2 Fluid (parameter setting related to fluid)

(1) Click "Setup (S)" from the menu, and then click on "Fluid" from the drop-down list of "Fld dev vars".

(2) The following window (Fig. 3-33) will be displayed. Here, set the parameter related to fluid.

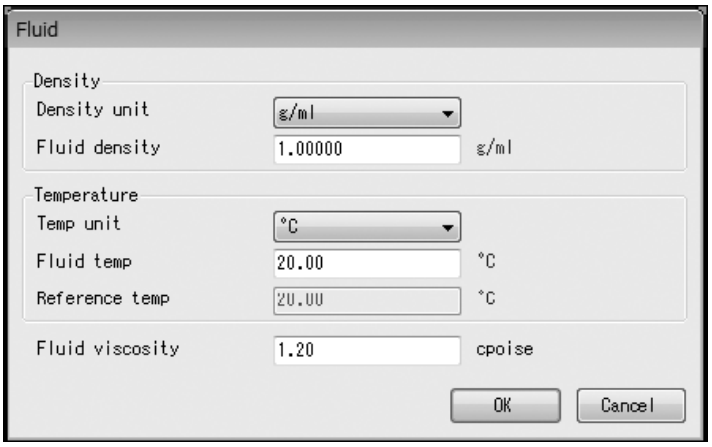


Fig. 3-33

(3) Select and input a value for respective items. To change the unit, it is also necessary to change the values of fluid density and fluid temperature.

Setting item	Detail	Setting range
Density unit	Fluid density unit	kg/CuMtr, lb/gal, lb/CuFt, g/ml, lb/CuIn
Fluid density	Fluid density	0.1 to 90 (in case of g/ml)
Temp unit	Temperature unit	°C, °F
Fluid temp	Fluid temperature	-20.00 to 120.00 (in case of °C)
Reference temp	Reference temperature for temperature compensation	Only for reference
Fluid viscosity	Fluid viscosity	0.01 to 999.99 (cpoise)

(4) Once all settings are completed, click "OK" button. Then, the message box (Fig. 3-34) will be displayed.
Click "OK" here to change the settings to the inputted values, and to reflect the changed setting values in the flowmeter's output. If the flowmeter's output is used to control valves or other such parts as safety protocol, change the control loop to manual control so that the control loop cannot be influenced by the flowmeter's output.

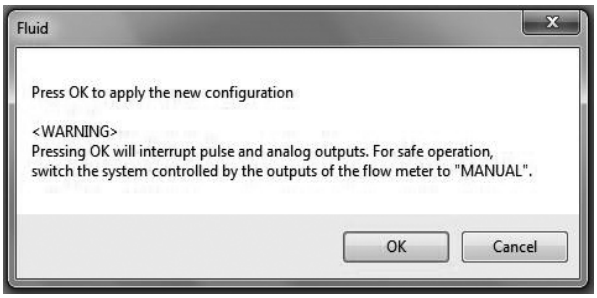


Fig. 3-34

(5) Click "OK" button. If the setting is changed to the setting value you input, the message box (Fig. 3-35) will be displayed. Click "OK" button to complete the setting.

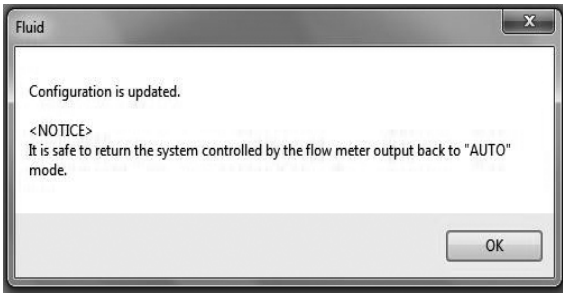


Fig. 3-35

(6) After clicking "OK" button, the window will return to the window for inputting the item. Click "Cancel" button to close the window for inputting the item.
To cancel the setting, click "Cancel" button during the steps (2) to (4).

3.6.3 Outputs (output setting)

3.6.3.1 Pulse output (pulse output setting)

(1) Click "Setup (S)" from the menu, and then click on "Pulse output" from the drop-down list of "Outputs".

(2) The following window (Fig. 3-36) will be displayed. Here, set the mode of pulse output.

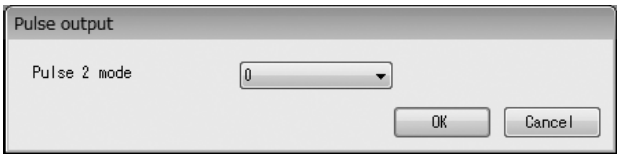


Fig. 3-36

Setting item	Detail	Setting range
Pulse 2 mode	Pulse 2 output assignment 0: inversion of pulse 1 1: reverse direction (in case of both of forward and reverse directions)	0, 1

(3) Click "OK" after the setting is completed. Then the message box (Fig. 3-37) will be displayed.
Click "OK" here to change the settings to the inputted values, and to reflect the changed setting values in the flowmeter's output. If the flowmeter's output is used to control valves or other such parts as safety protocol, change the control loop to manual control so that the control loop cannot be influenced by the flowmeter's output.

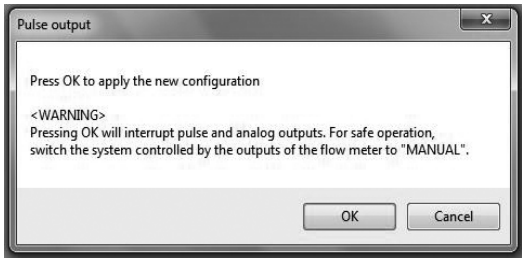


Fig. 3-37

(4) Click "OK" button. If the setting is changed to the selected setting value, the message box (Fig. 3-38) will be displayed. Click "OK" button to complete the setting.

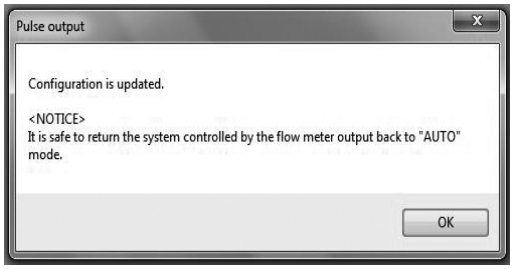


Fig. 3-38

(5) After clicking "OK" button, the window will return to the window for inputting the item. Click "Cancel" button to close the window for inputting the item.
To cancel the setting, click "Cancel" button during (2) to (3).

3.6.3.2 Status output (status output setting)

(1) Click "Setup (S)" from the menu, and then click on "Status output" from the drop-down list of "Outputs".

(2) The following window (Fig. 3-39) will be displayed. Here, set the function of status output.

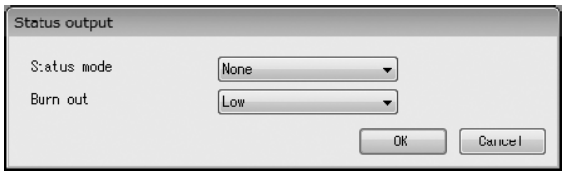


Fig. 3-39

(3) Click the arrow on the right side of "Status mode" and "Burn out" as shown in Fig. 3-40, Fig. 3-41, and then select an item to be set from the drop-down list.

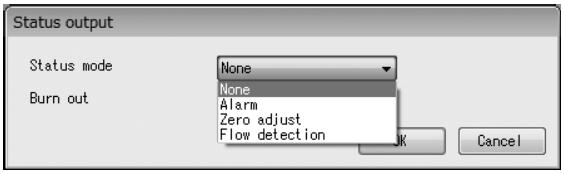


Fig. 3-40

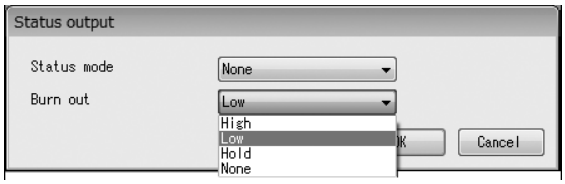


Fig. 3-41

Setting item	Detail	Setting range
Status mode	Status output mode None: no function, contact output OFF Alarm: ACTIVE when alarm is generated Zero adjust: ACTIVE during zero point adjustment Flow detection: ACTIVE at the occurrence of reverse flow	None, Alarm, Zero adjust, Flow detection

Setting item	Detail				Setting range
	Alarm output setting	LCD	Analog	Pulse 1 / 2	
Burn out	High	Hold	21.6mA	0Hz (stop)	High, Low, Hold, None
	Low		3.6mA	0Hz (stop)	
	Hold		Value immediately before generation of an error is continued up to recovery	Value immediately before generation of an error is continued up to recovery	
	None	Measured flow rate is displayed regardless of error	Measured flow rate is output regardless of error	Measured flow rate is output regardless of error	

(4) Click "OK" button after all settings are completed. Then the message box (Fig. 3-42) will be displayed. Click "OK" here to change the settings to the inputted values, and to reflect the changed setting values in the flowmeter's output. If the flowmeter's output is used to control valves or other such parts as safety protocol, change the control loop to manual control so that the control loop cannot be influenced by the flowmeter's output.

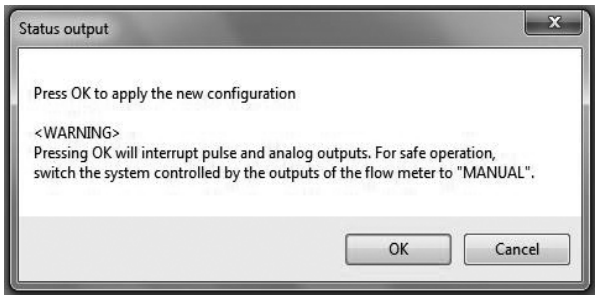


Fig. 3-42

(5) Click "OK" button. If the value is changed to the selected setting value, the message box (Fig. 3-43) will be displayed. Click "OK" button to complete the setting.

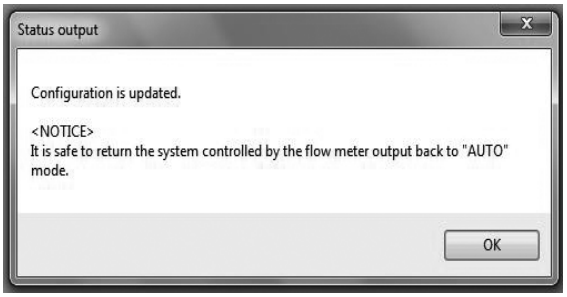


Fig. 3-43

(6) After clicking "OK" button, the window will return to the window for inputting the item. Click "Cancel" button to close the window for inputting the item.
To cancel the setting, click "Cancel" button during the steps (2) to (4).

3.6.4 Device information (transmitter information setting)

(1) Click "Setup (S)" from the menu, and then click on "Device information".

(2) The following window (Fig. 3-44) will be displayed. Here, set the transmitter information.

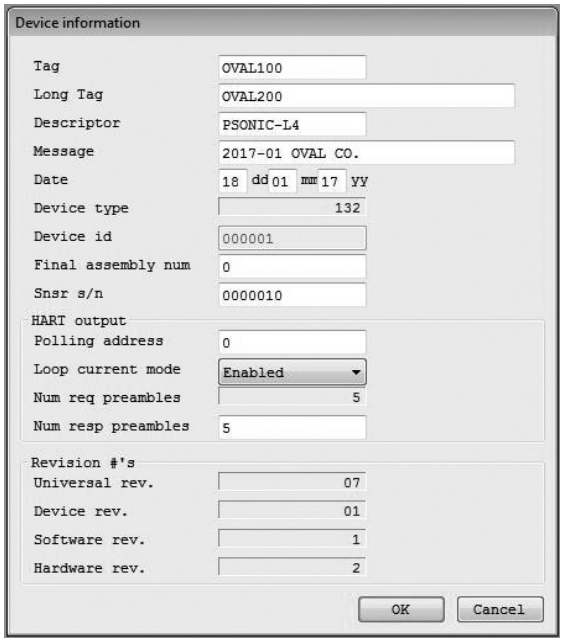


Fig. 3-44

(3) Set each item. If you point the cursor to the input field, the guide for input restriction shown in Fig. 3-45 will appear. Reference it at the setting.

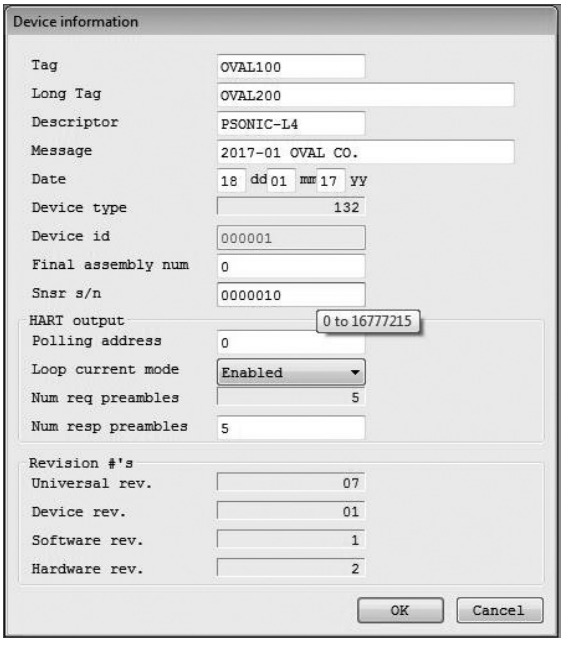


Fig. 3-45

Setting item	Detail	Setting range
Tag	Tag number	8 alphanumeric characters
Long Tag	Tag number	32 alphanumeric characters
Descriptor	Description	16 alphanumeric characters
Message	Message	32 alphanumeric characters
Date	Production date	Positive integer of 2 digits of day, month, and year
Device type	Device type of transmitter	132 (registered device number)
Device id	Device ID of transmitter	Only for reference
Final assembly num	Production number	0 to 16777215
Snsr s/n	Sensor type	0 to 16777215
Polling address	HART polling address for communication (address for multi drop) Default value: 0 * When connecting multiple flowmeters on the same segment, set the address other than "0" that is not duplicative for each flowmeter.	0 to 63
Loop current mode	Loop current mode	Disabled Enabled
Num req preambles	HART communication transmission preamble number	Only for reference
Num resp preambles	HART communication receiving preamble number	5 to 20
Universal rev.	Universal revision of HART communication	Only for reference
Device rev.	Field device revision	Only for reference
Software rev.	Software revision	Only for reference
Hardware rev.	Hardware revision	Only for reference

(4) Click "OK" button after all settings are completed to display the message box (Fig. 3-46).

Fig. 3-46

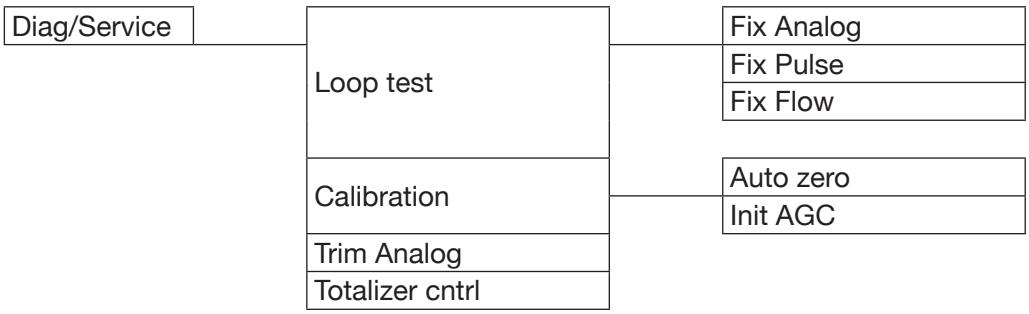
(5) Click "OK" button. If the setting is changed to the setting value you input, the message box (Fig. 3-47) will be displayed. Click "OK" button to complete the setting.

Fig. 3-47

(6) After clicking "OK" button, the window will return to the window for inputting the item. Click "Cancel" button to close the window for inputting the item.
To cancel the setting, click "Cancel" button during the steps (2) to (4).

3.7 Menu: Diag / Service (check / adjustment)

"Diag/Service" can be used to diagnose the flowmeter transmitter, perform loop tests on each output, adjust output values, calibrate the sensitivity of flow rate sensor, and reset cumulative totals.
Close all "Setup (S)" windows to enable checking and adjustment functions.
Also note that other than "Loop test", the "Diag/Service (T)" window cannot be displayed simultaneously with multiple windows (other than "Totalizer control").
The actual screen is as shown in Fig. 3-48.



Diag/Service Item Tree

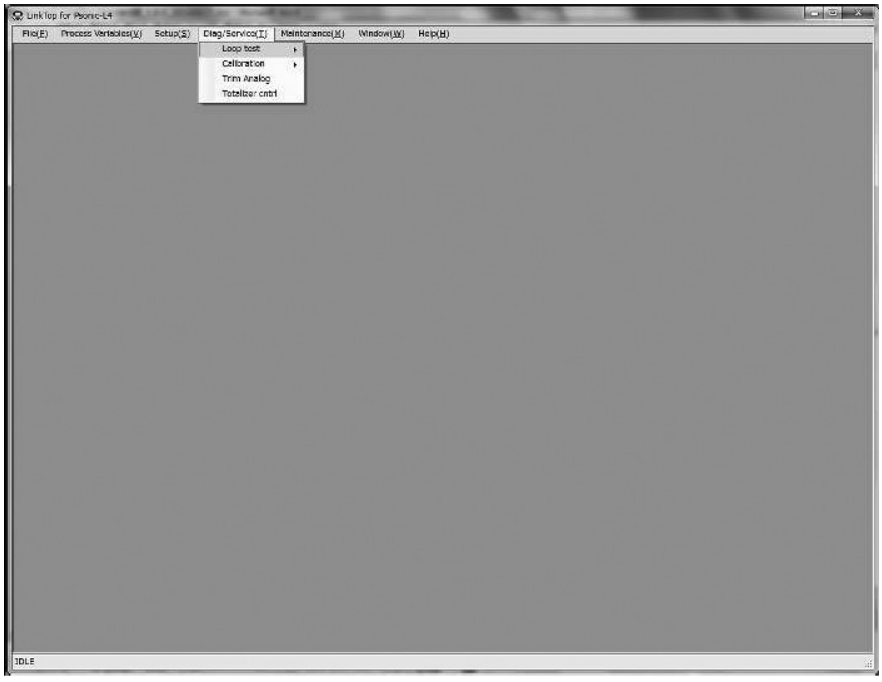


Fig. 3-48

3.7.1 Loop Test (loop test)

Simulated output will be created.

3.7.1.1 Fix Analog (analog output loop test)

This test can be used to put analog output into a simulated output state, and to verify the output line with a loop test.
The test creates simulated output regardless of the process state. If the flowmeter's output is used to control valves or other such parts, change the control loop to manual control for the sake of safety, and so that the control loop cannot be influenced by the flowmeter's output.
➡ NOTE: If the loop current mode is set to "Disabled", this test is unusable.

(1) Click "Diag/Service (T)" from the menu, and then click on "Fix Analog" from the drop-down list of "Loop Test".

(2) The following window (Fig. 3-49) will be displayed. Select the simulated output value and click "Start" button. To set and output a desired current value, select "Other" and enter the value to be output, then click "Start" button.
By clicking "Cancel" button, "Fix Analog" will be exited.

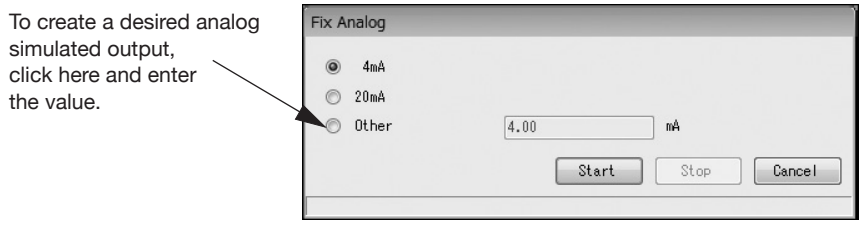


Fig. 3-49

Setting item	Detail	Setting range
4mA	4mA fixed output	-
20mA	20mA fixed output	-
Other	Sets a desired output value	2.4 to 21.6mA

(3) By clicking "Start" button, the message box (Fig. 3-50) will be displayed. By clicking "OK" button, "Fix Analog" will be started. By clicking "Cancel" button, the window will return to the window shown in Fig. 3-49.

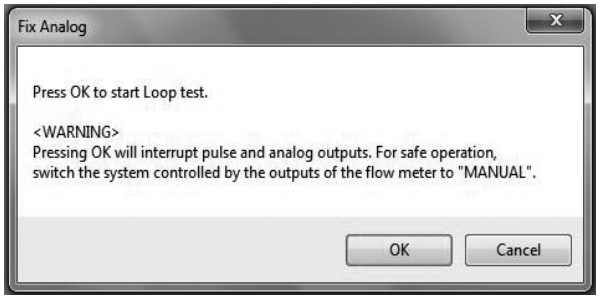


Fig. 3-50

(4) By clicking "OK" button, the analog value you set will be output. While the simulated output value is output, a message "Simulated output is provided now." is displayed at the bottom of the window as shown in Fig. 3-51.
Click "Stop" button to stop the simulated output.

Fig. 3-51

(5) By clicking "Stop" button, the message box (Fig. 3-52) will be displayed. Click "OK" button.

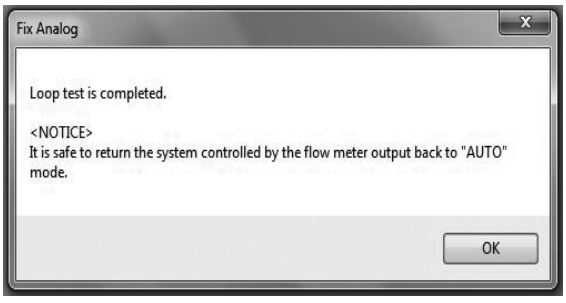


Fig. 3-52

(6) By clicking "OK" button, the window will return to the window shown in Fig. 3-51. Click "Cancel" button to exit "Fix Analog".

3.7.1.2 Fix Pulse (pulse output loop test)

This test can be used to put pulse output into a simulated output state, and to verify the output line with a loop test.
The test creates simulated output regardless of the process state. If the flowmeter's output is used to control valves or other such parts, change the control loop to manual control for the sake of safety, and so that the control loop cannot be influenced by the flowmeter's output.

(1) Click "Diag/Service (T)" from the menu, and then click on "Fix Pulse" from the drop-down list of "Loop Test".

(2) The following window (Fig. 3-53) will be displayed. Select the simulated output value and click "Start" button. To set and output a desired output value, select "Other" and enter the pulse frequency to be output, then click "Start" button.
The available range of pulse frequency is 1 to 11000Hz. By clicking "Cancel" button, "Fix Pulse" is exited.

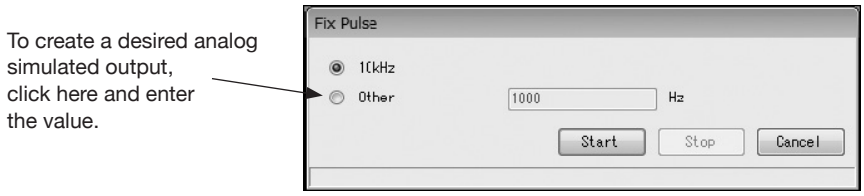


Fig. 3-53

Setting item	Detail	Setting range
10kHz	10kHz fixed output	-
Other	Sets a desired output value	1 to 11000Hz

(3) By clicking "Start" button, the message box (Fig. 3-54) will be displayed. By clicking "OK" button, "Fix Pulse" will be started.
By clicking "Cancel" button, the window will return to the window shown in Fig. 3-53.

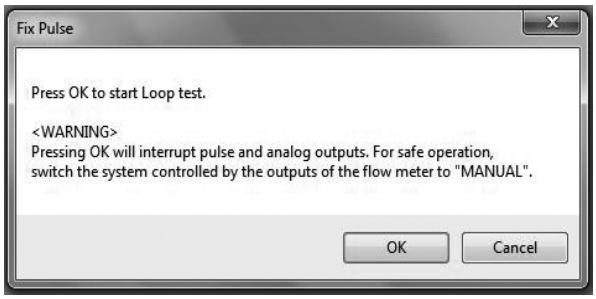


Fig. 3-54

➡ NOTE: Note that the cumulative total of flowmeter is also counted when the simulated output is created.

(4) By clicking "OK" button, the simulated output value you set will be output. While the simulated output value is output, a message "Simulated output is provided now." is displayed at the bottom of the window as shown in Fig. 3-55.
Click "Stop" button to stop the simulated output.

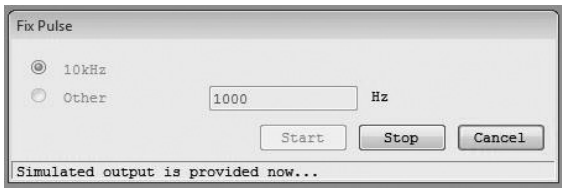


Fig. 3-55

(5) By clicking "Stop" button, the message box (Fig. 3-56) will be displayed. Click "OK" button.

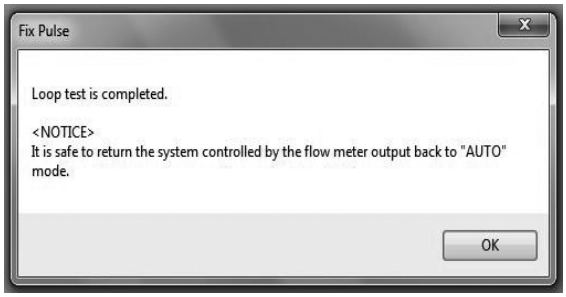


Fig. 3-56

(6) By clicking "OK" button, the window will return to the window shown in Fig. 3-53. Click "Cancel" button to exit "Fix Pulse".

3.7.1.3 Fix Flow (simulated flow rate loop test)

This puts status output into a simulated output state, and conducts a loop test on the output line.
Analog output and pulse output will be created according to the simulated flow rate you set.
This test creates simulated output regardless of the process state. If the flowmeter's output is used to control valves or other such parts, change the control loop to manual control for the sake of safety, and so that the control loop cannot be influenced by the flowmeter's output.

(1) Click "Diag/Service (T)" from the menu, and then click on "Fix Flow" from the drop-down list of "Loop Test".

(2) The following window (Fig. 3-57) will be displayed. Set a simulated flow rate value and click "Start" button. By clicking "Cancel" button, "Fix Flow" will be exited.

➡ NOTE: Note that difference may be generated between input flow rate and LCD display of flowmeter body, and output value and set flow rate in this simulated output mode depending on the parameter setting.
Moreover, note that the cumulative total of flowmeter is also counted when the simulated output is created.

Fig. 3-57

Setting item	Detail	Setting range
Fix Flow	Fixed output of instantaneous flow rate	-9999.0 to 9999.0 (setting unit)

(3) By clicking "Start" button, the message box (Fig. 3-58) will be displayed. By clicking "OK" button, "Fix Flow" will be started.
By clicking "Cancel" button, the window will return to the window shown in Fig. 3-57.

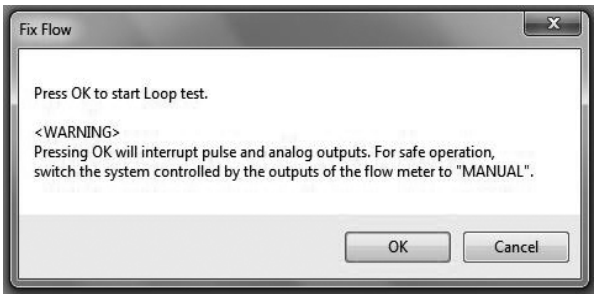


Fig. 3-58

(4) By clicking "OK" button, the simulated flow rate value you set will be output. While the simulated flow rate value is output, a message "Simulated output is provided now." is displayed at the bottom of the window as shown in Fig. 3-59.
Click "Stop" button to stop the simulated output.

Fig. 3-59

(5) By clicking "Stop" button, the message box (Fig. 3-60) will be displayed. Click "OK" button.

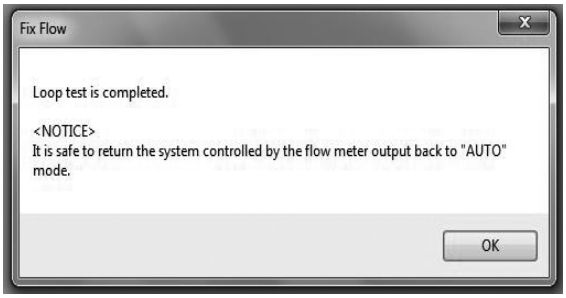


Fig. 3-60

(6) By clicking "OK" button, the window will return to the window shown in Fig. 3-57. Click "Cancel" button to exit "Fix Flow".

3.7.2 Calibration (transmitter's adjustment function)

This executes the adjustment function of flowmeter transmitter.

3.7.2.1 Auto zero (auto zero point adjustment)

This adjusts the zero point for flow rate measurement of flowmeter transmitter.

(1) Click "Diag/Service (T)" from the menu, and then click on "Auto zero" from the drop-down list of "Calibration".

(2) The following window (Fig. 3-61) will be displayed. Set the calibration time and stop the fluid completely, and then click "OK" button.

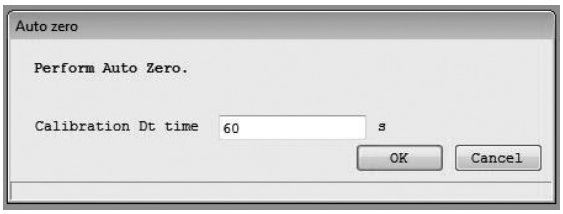


Fig. 3-61

Setting item	Detail	Setting range
Calibration Dt time	Zero point adjustment execution time	60 to 600 (seconds)

(3) Click "OK" button. By clicking it, the message box (Fig. 3-62) will be displayed.

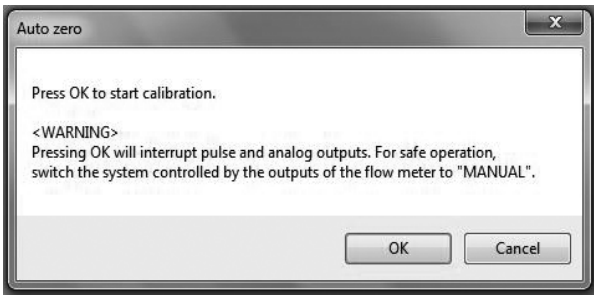


Fig. 3-62

(4) By clicking "OK" button, the zero point adjustment will be executed. When it is started, the message box (Fig. 3-63) will be displayed. By clicking "OK" button, the window will return to the window shown in Fig. 3-61. Click "Cancel" button to exit it. During this time, the transmitter executes the zero point adjustment.

Fig. 3-63

⚠ **CAUTION: The process fluid in the measurement pipe of flowmeter has to be completely stopped.**
Otherwise, the zero point adjustment cannot be correctly executed.
Also, It may not be executed if an error exists in the flow rate measurement.

3.7.2.2 Init AGC (sensitivity adjustment)

This adjusts the sensitivity of flow rate sensor.

(1) Click "Diag/Service (T)" from the menu, and then click on "Init AGC" from the down-list of "Calibration".

(2) The following window (Fig. 3-64) will be displayed. Stop the fluid completely, and then click "OK" button.

Fig. 3-64

(3) Click "OK" button. By clicking it, the message box (Fig. 3-65) will be displayed.

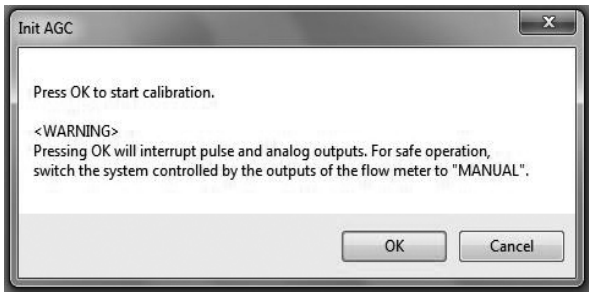


Fig. 3-65

(4) By clicking "OK" button, the sensitivity adjustment will be executed. The screen during adjustment displays the process during adjustment as shown in Fig. 3-66.

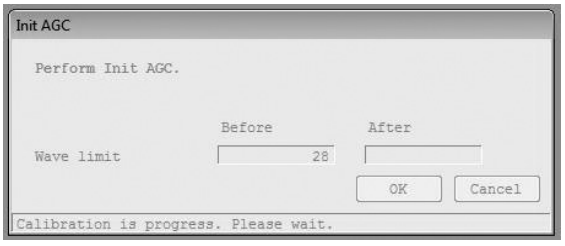


Fig. 3-66

(5) Once the adjustment is completed, the message box (Fig. 3-67) will be displayed. Click "OK" button. The value after the adjustment will be displayed as shown in Fig. 3-68.

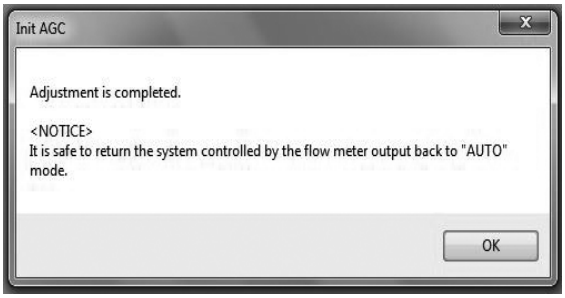


Fig. 3-67

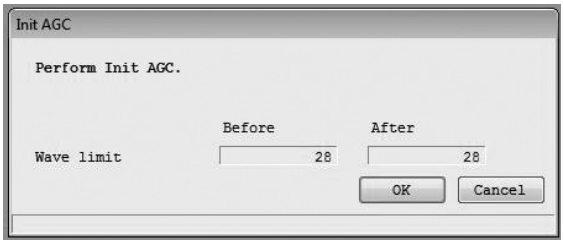


Fig. 3-68

(6) By clicking "OK" button, the window will return to the window shown in Fig. 3-64. Click "Cancel" button to exit "Init AGC".

⚠ **CAUTION: "Init AGC" may not be executed if an error exists in the flow rate measurement.**

3.7.3 Trim Analog (analog output adjustment)

This adjusts the output value of the flowmeter transmitter's analog output.
This function is for adjusting the values by outputting analog values equivalent to 4mA and 20mA regardless of the processing state. If the flowmeter's output is used to control valves or other such parts as safety protocol, change the control loop to manual control so that the control loop cannot be influenced by the flowmeter's output.
➡ NOTE: If the loop current mode is set to "Disabled", this test is unusable.

(1) Click "Diag/Service (T)" from the menu, and then click on "Trim Analog".

(2) The following window (Fig. 3-69) will be displayed. Select the scale from "4mA - 20mA" or "Other scale" and click "OK".

Fig. 3-69

(3) By clicking "OK" button, the message box (Fig. 3-70) will be displayed. To adjust the analog output, click "OK" button.

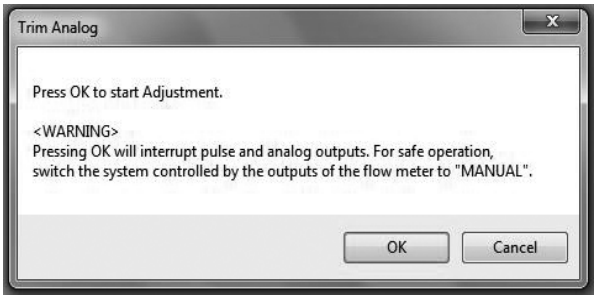


Fig. 3-70

When "4mA - 20mA" is used for adjustment, insert a reference ammeter into the analog output loop, and perform the adjustment following the method described in steps (4) to (7).
When "Other scale" is used, insert a load resistance into the analog output loop, and perform the adjustment following the method described in steps (8) to (12) (this description covers the situation where R_L= 250Ω is inserted to make an adjustment on both ends of the voltage value scale of 1 to 5V).

(4) If you select "4mA–20mA" on the window shown in Fig. 3-69 and click "OK" button, the window shown in Fig. 3-71 will be displayed. Select whether 4mA or 20mA should be used for the adjustment. Here, 4mA adjustment is executed and then 20mA adjustment is executed in order.
Enter the current reading of the ammeter output and click "OK" button.

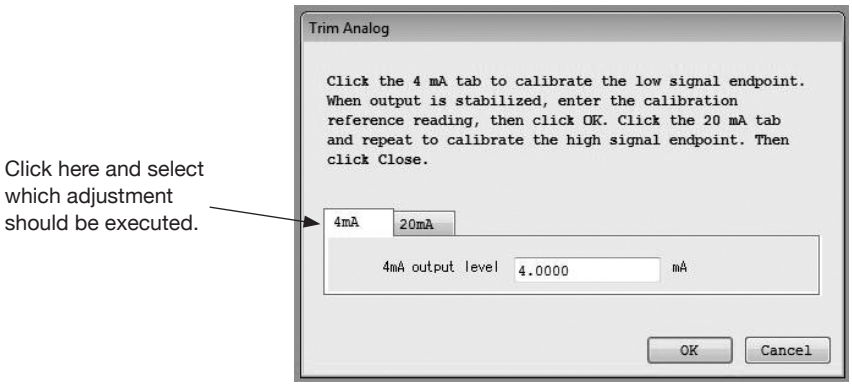


Fig. 3-71

When the reading is sent, the transmitter automatically adjusts the output to 4mA. Verify that the connected ammeter indicates 4mA.
If another adjustment is required, enter the reading of the ammeter again on this window and click "OK" button.

(5) To execute 20mA adjustment, click 20mA side on the window shown in Fig. 3-71 and execute adjustment so that the connected ammeter indicator reads 20mA in the same manner as 4mA adjustment.

(6) By clicking "Cancel" button, the adjustment of analog output value will be completed. The message box "Adjustment is completed" shown in Fig. 3-72 will be displayed. Click "OK" button.

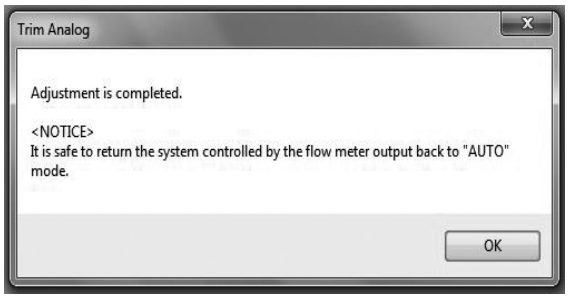


Fig. 3-72

(7) To stop the adjustment during the process, click "Cancel" button and follow the following message.

(8) When you select "Other scale" on the window shown in Fig. 3-69, the input of other scale will be enabled as shown in Fig. 3-73. If you enter an analog value (here, 1V) equivalent to 4mA output in the 4mA entry field, the corresponding value will be automatically entered in the 20mA entry field.

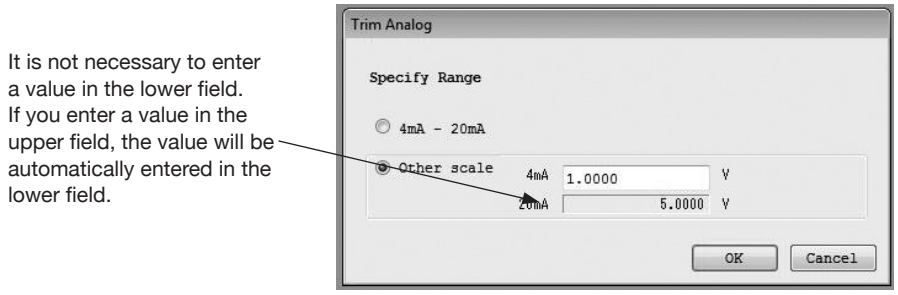


Fig. 3-73

Here, analog output adjustment with 1 to 5V scale is available.
By clicking "OK" button, Fig. 3-70 will be displayed in the same manner. To execute the analog output adjustment, click "OK" button. Additionally, click "OK" button to start the adjustment. Connect a measuring instrument (reference voltmeter) across both ends of load resistance R_L.

(9) The window shown in Fig. 3-74 will be displayed. Select whether 4mA adjustment or 20mA adjustment should be executed.
Here, 4mA adjustment is executed and then 20mA adjustment is executed in order.
Enter the reading of a measuring instrument and click "OK" button.

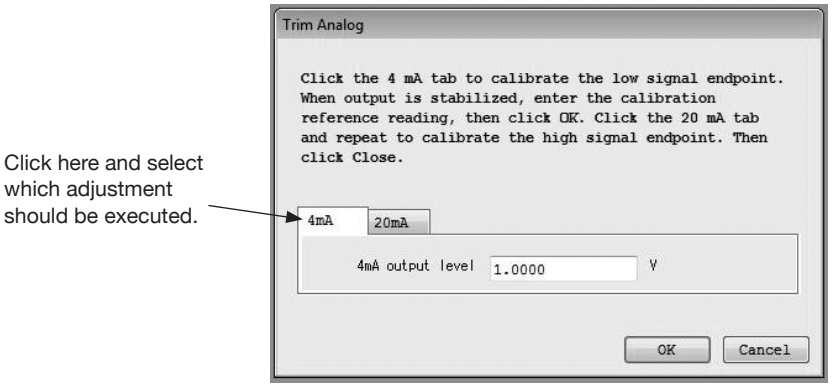


Fig. 3-74

When the reading is sent, the transmitter automatically adjusts the output to 4mA. Verify that the indicator of the connected measuring instrument is 1V.
If another adjustment is required, enter the reading of a measuring instrument on this window and click "OK" button.

(10) To execute 20mA adjustment, click 20mA on the window shown in Fig. 3-74 and execute adjustment so that the connected measuring instrument indicates 5V as in the same way as 4mA adjustment.

(11) By clicking "Cancel" button, the adjustment of analog output value will be completed. The window "Adjustment is completed" shown in Fig. 3-72 will be displayed. Click "OK" button.

(12) To stop the adjustment during the process, click "Cancel" button and follow the following message.

3.7.4 Totalizer cntrl (cumulative total control)

Use this for functions such as displaying the cumulative totals, and starting, stopping, and resetting the count.

(1) Click "Diag/Service (T)" from the menu, and then click on "Totalizer cntrl".

(2) The following window (Fig. 3-75) will be displayed.

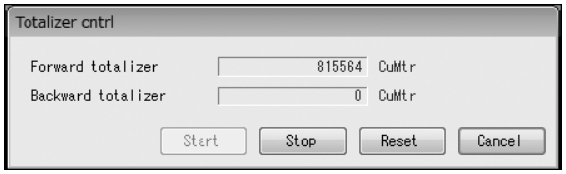


Fig. 3-75

(3) On this window, "Start", "Stop", and "Reset" of cumulative total can be executed. As "Start", "Stop", and "Reset" are interlocked with pulse output, note that pulse is not output in "Stop" status.
In usual status, "Start" or "Stop" is selected. The selected item is displayed in gray.
If you execute "Reset", both of "Forward totalizer" and "Backward totalizer" will be reset to "0".

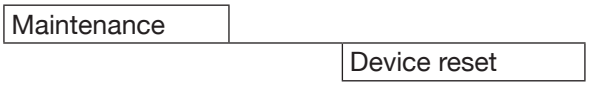
(4) To close the window of cumulative total control, click "Cancel" button.

➡ NOTE: Usually, verify "Start" is displayed in gray (selected), and then close the menu.

3.8 Menu: Maintenance (maintenance)

"Maintenance (M)" is used for resetting (rebooting) the transmitter.

The actual screen is as shown in Fig. 3-76.



Maintenance Item Tree

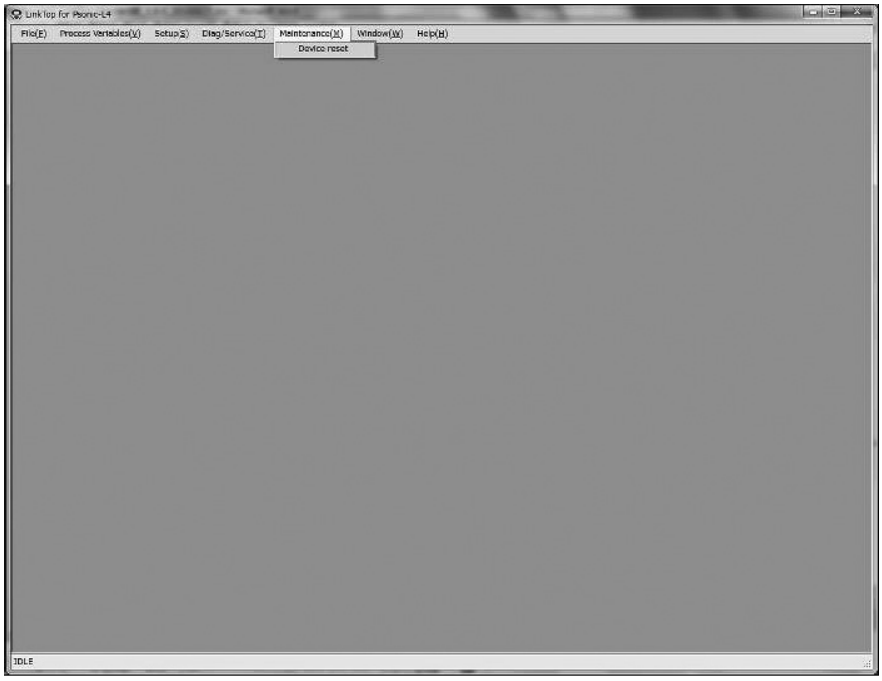


Fig. 3-76

3.8.1 Device reset (transmitter reset)

(1) Click "Maintenance (M)" from the menu, and then click on "Device reset".

(2) The following window (Fig. 3-77) will be displayed.

Fig. 3-77

(3) By clicking "OK" button, the message box (Fig. 3-78) will be displayed. Here, if you click "OK" button, the transmitter will be reset.

Fig. 3-78

(4) By clicking "OK" button, the message box (Fig. 3-79) will be displayed. By clicking "OK" button, the reset of transmitter will be completed.

Fig. 3-79

(5) After clicking "OK" button, the window will return to the window for inputting the item. Click "Cancel" button to close the window for inputting the item.
To stop the reset, click "Cancel" button during (2) to (3).

3.9 Menu: Window (window)

The "Window" menu can be used to arrange the currently displayed windows.
For the types to be arranged, "Cascade", "TileHorizontal", and "TileVertical" are available.
For instance, assume that multiple windows are being displayed, as shown in Fig. 3-80.

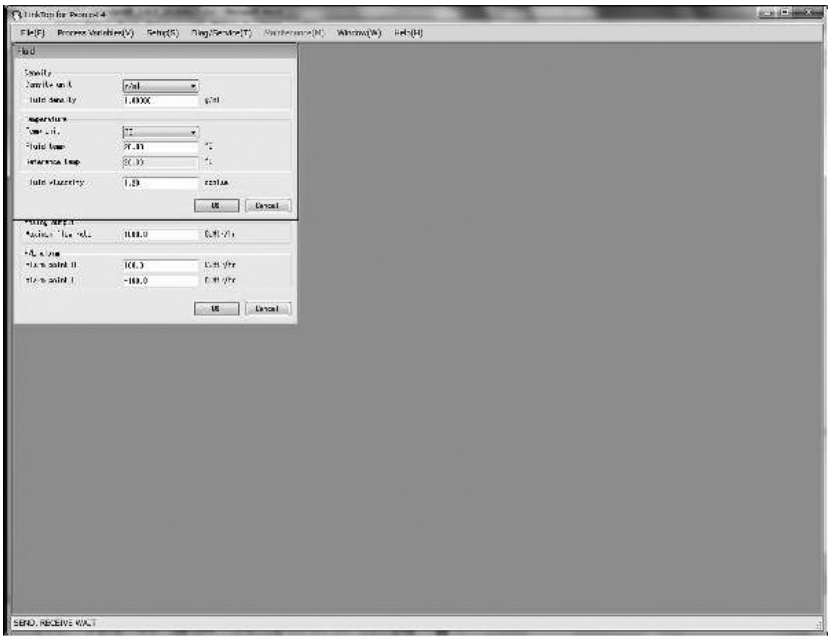


Fig. 3-80

(1) If "Cascade" is selected, the windows are overlaid as shown in Fig. 3-81.

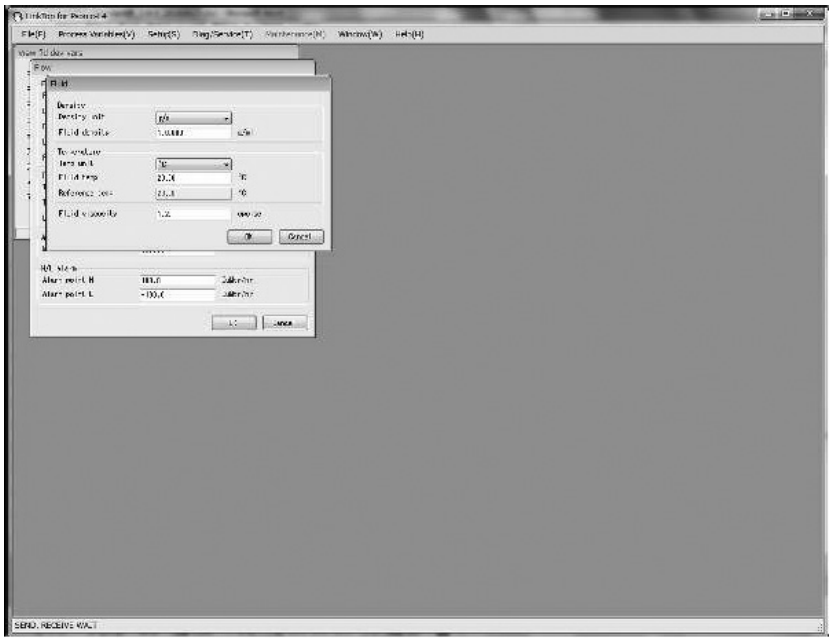


Fig. 3-81

(2) If "TileHorizontal" is selected, the windows are displayed vertically as shown in Fig. 3-82.

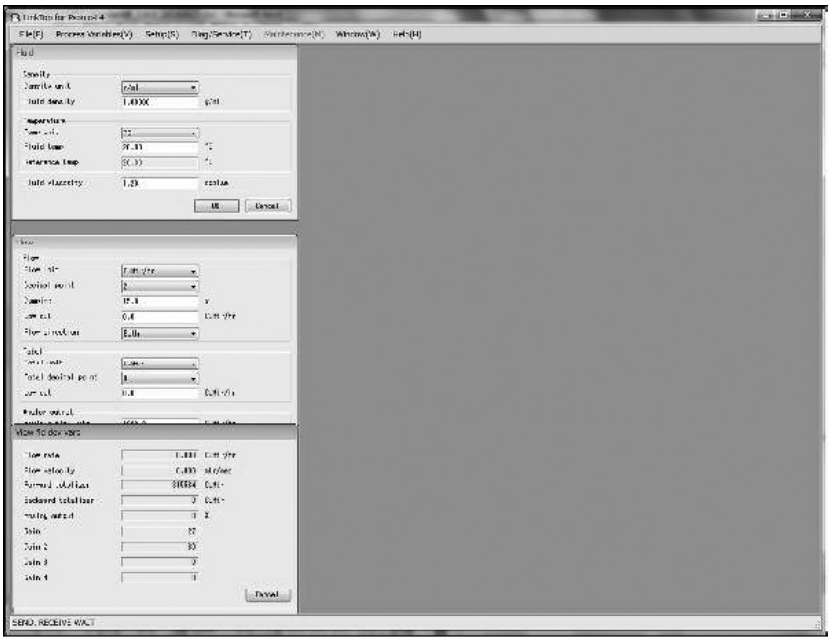


Fig. 3-82

(3) If "TileVertical" is selected, the windows are displayed horizontally as shown in Fig. 3-83.

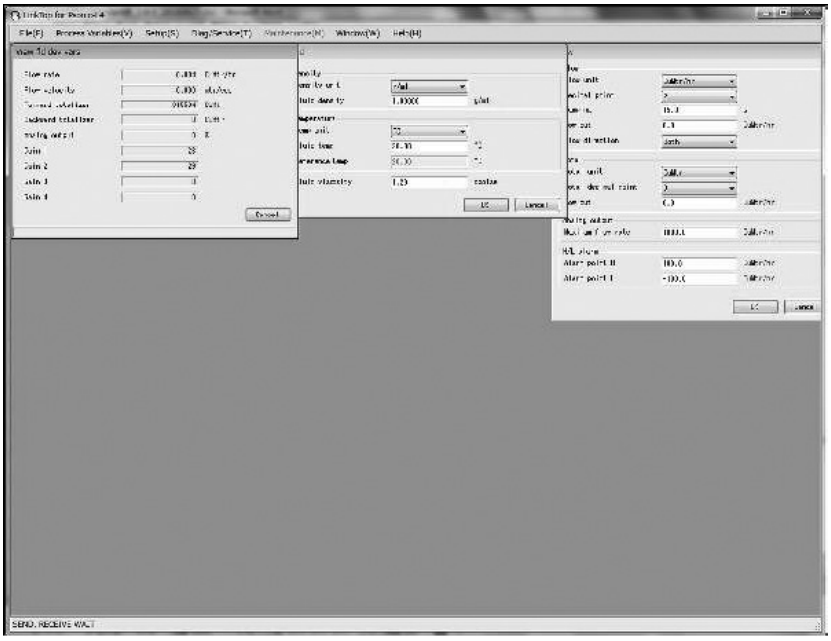


Fig. 3-83

3.10 Menu: File (file)

The "File" menu can be used to connect communications (refer to section "3.2 Starting LinkTop and Connections"), to termination of connection (refer to section "3.3 Terminating the Connection", and "3.4 Terminating LinkTop"), as well as to set ports (refer to section "3.2.2 Port setting"), to create a flowmeter transmitter parameter database, and print parameters. This section describes the database and printing features.

3.10.1 Database

The various parameters, transmitter information, etc., that are inputted through the "Setup" menu (described in section 3.6) are stored in a database. This can be saved on a hard disk, flash memory, or other types of storage medium. Setting values can also be downloaded to the flowmeter transmitter.
However, the data can be downloaded only when the write protect is set to "Not write protect".

3.10.1.1 Opening Files

It is possible to load data from a saved file.

(1) Click "File (F)" from the menu, and then click on "Open File (O)" from the drop-down list of "Database (F)".

(2) The common dialog box (Fig. 3-84) will be displayed. Select the drive and folder where the file to be opened is stored from the drop-down list.

(3) Select the file you want to open from the displayed files. Verify "File name (N)" and click "Open (O)" button. Click "Cancel" button to exit the operation without opening the file.

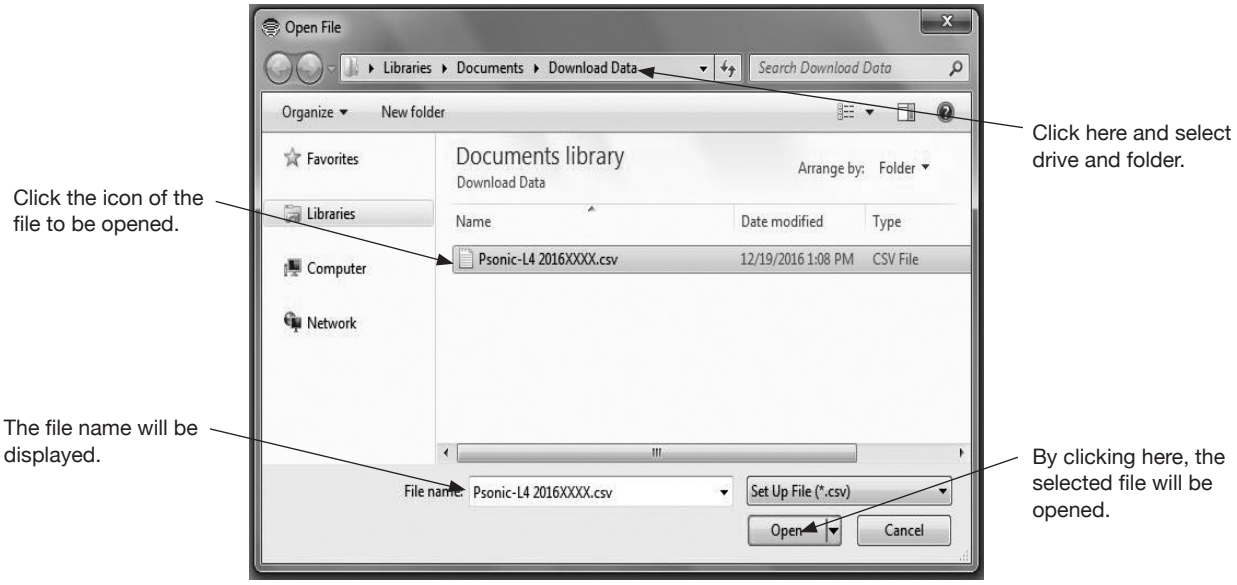


Fig. 3-84

(4) Select a file you want to open from the displayed files. Verify "File name (N)" and click "Open (O)" button. Click "Cancel" button to exit the operation without opening the file.

(5) The parameters of the selected file can be printed. For printing, refer to "3.10.2 Printing".

3.10.1.2 Saving Files

It is possible to save parameters in the flowmeter transmitter to a file.

(1) Click "File (F)" from the menu, and then click on "Save File (S)" from the drop-down list of "Database (F)".

(2) The following window (Fig. 3-85) will be displayed. To reflect the latest data, execute upload here. If it is cancelled, the file cannot be saved.

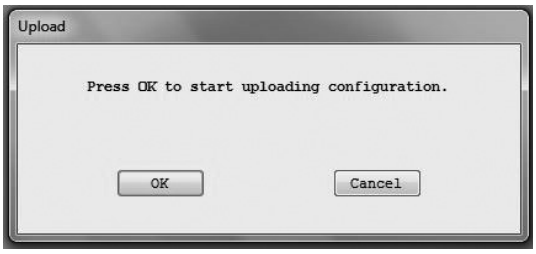


Fig. 3-85

(3) After the upload is completed, the dialog box shown in Fig. 3-86 will be displayed. Enter the name of file to be saved and click "Save (S)" button.
Saving of file is completed.
If a wrong destination to save the file is selected, click "Cancel" button and execute the operation anew.

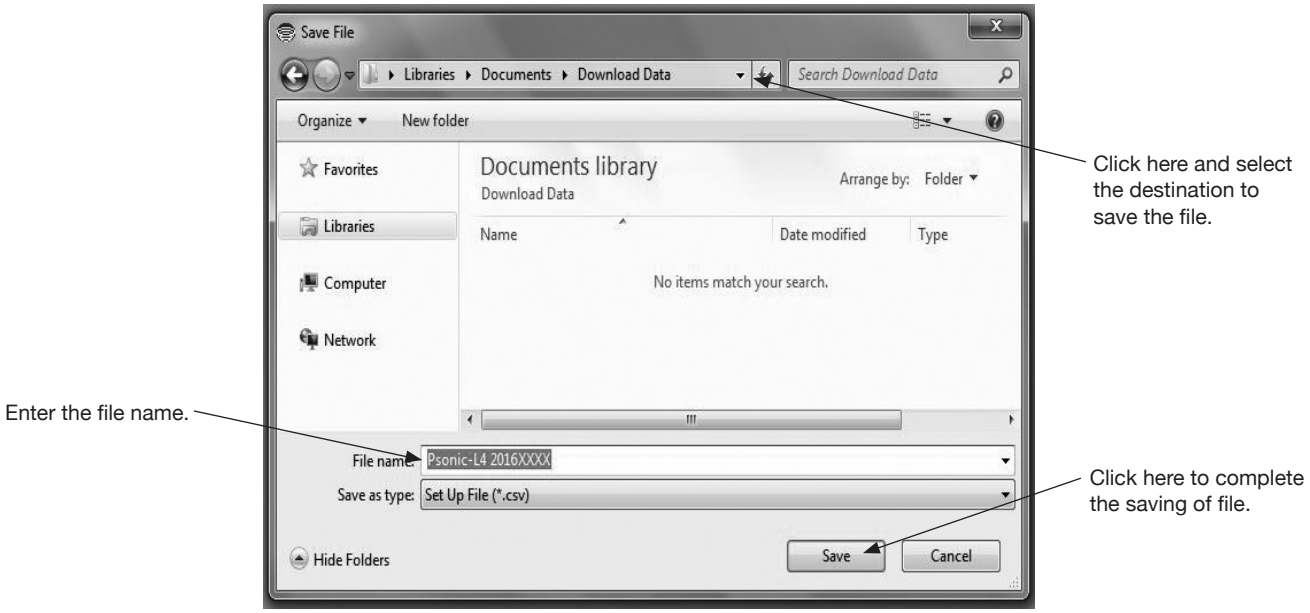


Fig. 3-86

3.10.1.3 Deleting Files

It is possible to delete data files that are no longer necessary.

(1) Click "File (F)" from the menu, and then click on "Delete File (X)" from the drop-down list of "Database (F)".

(2) The common dialog box (Fig. 3-87) will be displayed. Select the drive and folder where the file to be deleted is stored from the drop-down list.

(3) Click and select the file to be deleted. Verify "File name (N)" and click "Open (O)" button. Click "Cancel" button to exit the operation without deleting the file.

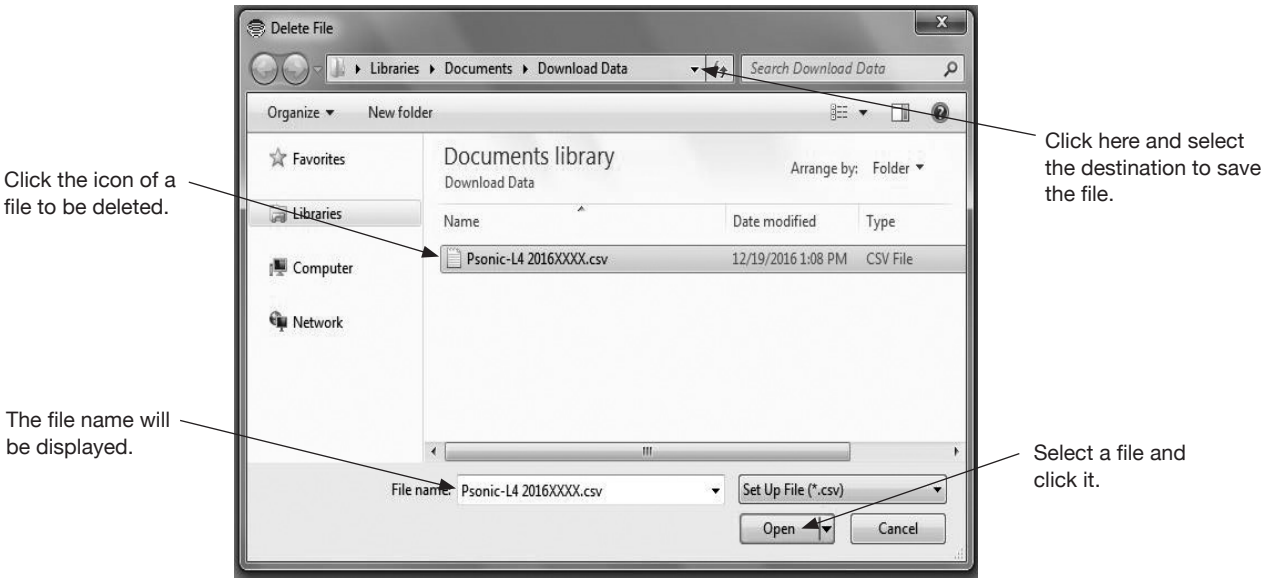


Fig. 3-87

(4) After the click, the selected file will be opened. The message box (Fig. 3-88) will be displayed. Click "OK" button to delete the file and click "Cancel" button not to delete the file.
By clicking "OK" button, the file will be deleted.

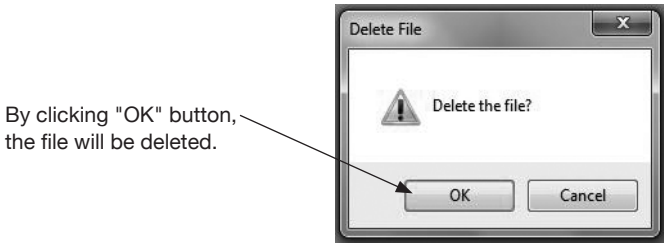


Fig. 3-88

3.10.1.4 Downloading

This function is used to send all the parameters from a selected file to the flowmeter transmitter. This makes it possible to use the same parameters to set up another flowmeter transmitter (to copy settings).
If the polling address (HART poll address) of the transmitter is set other than "0", execute downloading while communication is connected.

(1) Before downloading, confirm the parameter currently set to the flowmeter and make sure the flowmeter is the one suitable for this operation.
If you want to save the parameters, follow "3.10.1.2 Saving Files".

(2) After the confirmation of flowmeter, the file to be downloaded will be read out.

(3) Click "File (F)" from the menu, and click "Download (D)" from the drop-down list of "Database (F)" again.

(4) The common dialog box (Fig. 3-89) will be displayed. Select the drive and folder where the file to be downloaded is stored from the drop-down list.

(5) Click and select the file to be downloaded. Verify "File name (N)" and click "Open (O)" button. Click "Cancel" button to exit the operation without downloading the file.

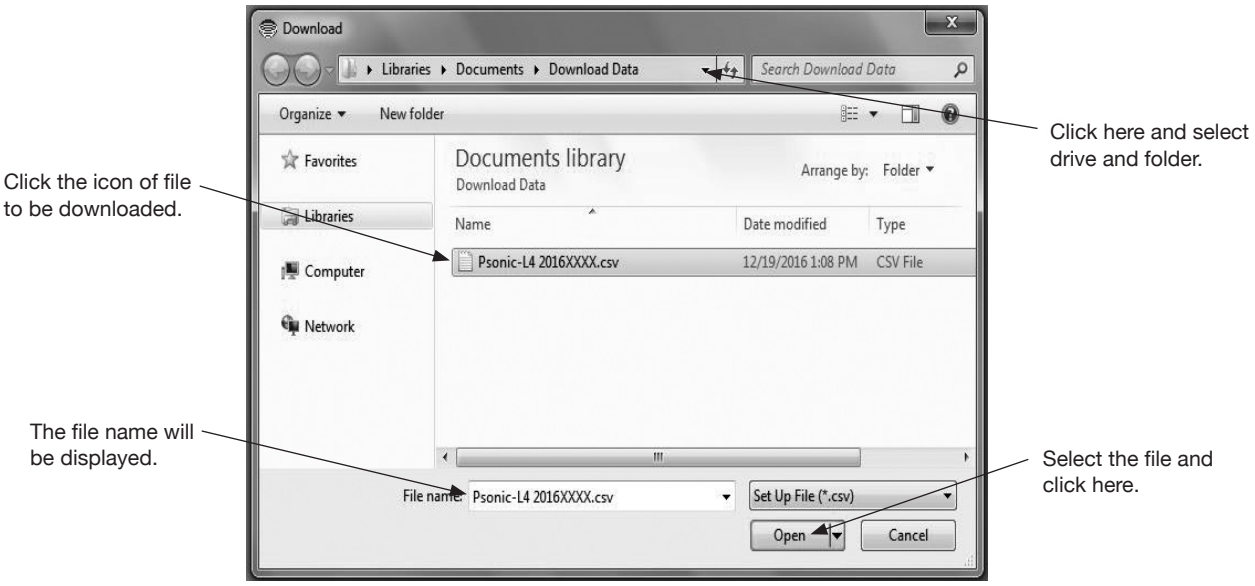


Fig. 3-89

(6) The message box (Fig. 3-90) will be displayed. Click "OK" button to download the parameters to the transmitter.
"Cancel" button to cancel the download.

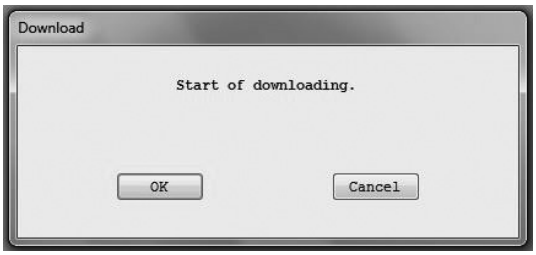


Fig. 3-90

(7) Once the parameters are downloaded, various set values are changed and the output value from the flowmeter is also changed. If valves are controlled by the output of the flowmeter, change the control loop to manual control for the sake of safety, so that the control loop may not be affected by the output of the flowmeter.

(8) If you click "OK" button and the download is started, the message box (Fig. 3-91) will be displayed. It is possible to confirm the status of downloading by the progress bar in the center of the window.

Fig. 3-91

(9) Once the download is completed, a message box (Fig. 3-92) will be displayed. Click "OK" button.

Fig. 3-92

(10) Verify the downloaded content. Disconnect the communication following "3.3 Terminating the Connection".
Next, connect the communication following "3.2.3 Connection". Check the data is changed to the downloaded content following "3.6 Menu: Setup (Settings)".

3.10.2 Printing

It is possible to print a table of the transmitter's setting parameters.

(1) Click "File (F)" from the menu, and then click on "Print (P) Ctrl+P".

(2) The following window (Fig. 3-93) will be displayed. To reflect the latest data, execute uploading here. If it is cancelled, the printing screen will not be displayed.

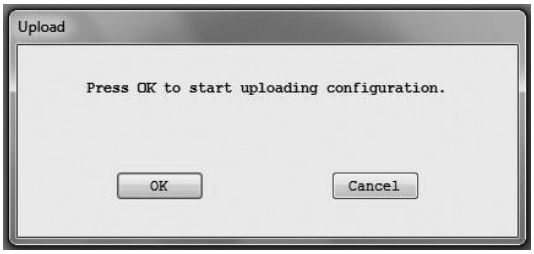


Fig. 3-93

(3) After the upload is terminated, the following window (Fig. 3-94) will be displayed. Verify parameter values here. Click "Print" button to execute printing and click "Cancel" button not to execute printing. The display size can be changed.

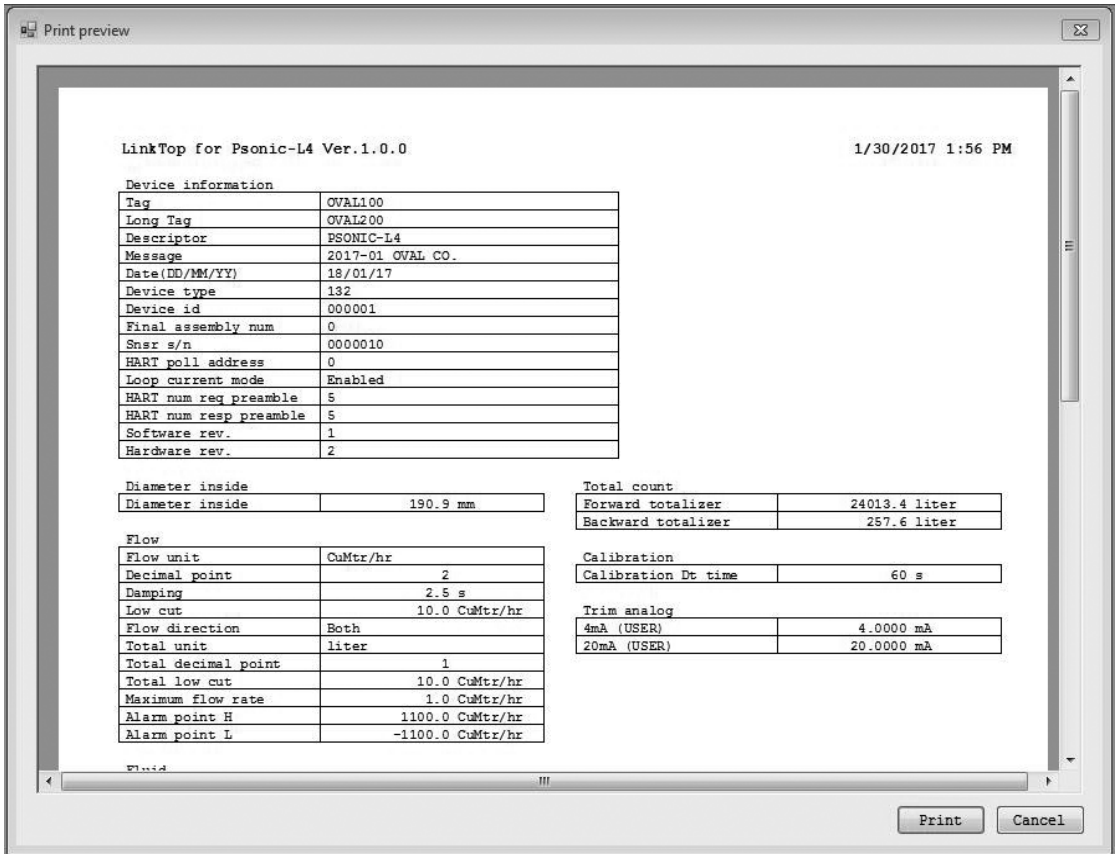


Fig. 3-94

(4) By clicking "Print" button, the printing will be executed as shown in Fig. 3-95.

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Device information

Tag	OVAL100
Long Tag	OVAL200
Descriptor	PSONIC-L4
Message	2017-01 OVAL CO.
Date(DD/MM/YY)	18/01/17
Device type	132
Device id	000001
Final assembly num	0
Snsr s/n	0000010
HART poll address	0
Loop current mode	Enabled
HART num req preamble	5
HART num resp preamble	5
Software rev.	1
Hardware rev.	2

Diameter inside

Diameter inside	190.9 mm

Flow

Flow unit	CuMtr/hr
Decimal point	2
Damping	2.5 s
Low cut	10.0 CuMtr/hr
Flow direction	Both
Total unit	liter
Total decimal point	1
Total low cut	10.0 CuMtr/hr
Maximum flow rate	1.0 CuMtr/hr
Alarm point H	1100.0 CuMtr/hr
Alarm point L	-1100.0 CuMtr/hr

Fluid

Density unit	g/ml
Fluid density	0.72690 g/ml
Temp unit	degC
Fluid temp	23.00 degC
Reference temp	23.00 degC
Fluid viscosity	0.52 cpoise

Pulse output

Pulse 2 mode	0

Status output

Status mode	Flow detection
Burn out	None

Total count

Forward totalizer	24013.4 liter
Backward totalizer	257.6 liter

Calibration

Calibration Dt time	60 s

Trim analog

4mA (USER)	4.0000 mA
20mA (USER)	20.0000 mA

Fig. 3-95

(5) For the printer to be used for printing, carry out the setting by clicking "Start menu" → "Settings" → "Control panel" → "Printer" of the used PC.

3.11 Troubleshooting

3.11.1 If There is No Response

If there is a problem preventing communication between the PC and flowmeter when the flowmeter is connected as described in section "3.2 Starting LinkTop and Connections", or while this application is being used, then a message box will appear as shown in Fig. 3-96 . Click "OK" button if this happens, then verify the following and try reconnecting as described in section "3.2 Starting LinkTop and Connections":

- Is the smart communication unit's probe or unit disconnected?
- Is the flowmeter transmitter receiving power?
- Is the polling address correct?

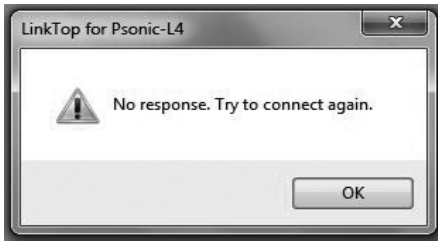

Fig. 3-96

3.11.2 If It is Not Possible to Connect to the Flowmeter

When connecting the flowmeter in "3.2 Starting LinkTop and Connections", a message box in Fig. 3-97 will be displayed if the transmitter is not supported by this application software. Click "OK" button and make sure the type of connected transmitter corresponds to the applicable transmitter of the application software, and then carry out the connection again following the section "3.2 Starting LinkTop and Connections".

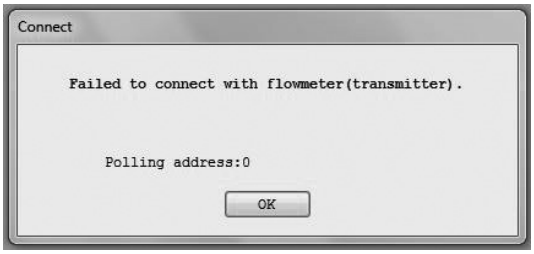

Fig. 3-97

3.11.3 Input Errors

If wrong data is inputted during "Menu: Setup (Settings)" or "Menu: Diag/Service (Checking and Adjustment)" and the communications with flowmeter transmitter are tried, an error box will appear on the desktop as an "input error".
There are two types of input errors; wrong setting on LinkTop and wrong data sent to flowmeter transmitter, which is evaluated as wrong setting on transmitter side.

(1) After the setting item is inputted and "OK" button clicked, if the setting is evaluated as wrong setting on LinkTop, the warning error box shown in Fig. 3-98 will appear. Click "OK" button and correct the wrong input.

Fig. 3-98

(2) After the setting item is input and "OK" button is clicked, if the setting is evaluated as wrong setting on transmitter side, the warning error box shown in Fig. 3-99 will appear. Click "OK" button and correct the wrong input.

Fig. 3-99

3.11.4 Error, Status Display List

Error List

Name	Detail	Reset condition
TX Error	Transmission circuit error	Unable to recover automatically due to the hardware failure
RX Error	Receiving circuit error	Unable to recover automatically due to the hardware failure
Alarm High Error	Upper limit alarm	When the flow rate value falls below the upper limit value
Alarm Low Error	Lower limit alarm	When the flow rate value exceeds the lower limit value
Roff Error	No wave receiving error When there is no received signal for 1 measuring line or more (sensor failure, partially filled pipe)	In case of normal measurement
Zero Offset Non Adjust Error	Zero point not adjusted	Implementation of zero point calibration
Rom Check Error	ROM check error	Unable to recover automatically due to the hardware failure
Asym Error	Velocity distribution failure (asymmetry)	When the value falls below the criterion value of diagnosis parameter
Swirl Error	Velocity distribution failure (rotational flow)	When the value falls below the criterion value of diagnosis parameter

Status List

Name	Detail	Reset condition
Simulation Active	At execution in simulated output mode	Terminate the simulated output mode
Non-Volatile Memory Defect	ROM check error	Unable to recover automatically due to the hardware failure
Device Configuration Locked	When the parameter write protect SW is turned ON	When the parameter write protect SW is turned OFF

4. PRODUCT CODE EXPLANATION

Classification	Symbol												Description
	①	②	③	④	⑤	⑥	–	⑦	⑧	⑨	⑩	⑪	⑫	
Model	E	L	2	3	1	0	–							Smart communication unit
Power supply								0						Always "0"
Applied flowmeter									D					Ultrasonic flowmeter for liquid Psonic-L4
Language										J				Japanese (Japanese version OS supported)
										E				English (English version OS supported)
Interface											0			Without interface (only application software)
											1			With interface (Bell 202-USB conversion)
Media (application software)												1		CD-ROM
												9		In case of other than above
													0	Always "0"

5. GENERAL SPECIFICATIONS

Item		Description
Interface (* 1)	Connector	USB (A type)
	Input/output signal	Bell 202 ←→ USB
	Operating temp.	– 5 to +60°C
	External dimensions	Master body: W 50 x H 20 x D 35 mm Probe: approx. 1500 mm (fixed to interface body)
	Housing	Resin (black)
Communication protocol		HART™ protocol
Communication terminal resistance		Load resistance 250Ω or more (however, the upper limit depends on the specifications of transmitter (flowmeter transmitter))
Function		• Monitoring of measurement value • Reading, change of setting, and saving of parameter (location of saving the file is FD, HD, or other external memory etc.) • Adjustment of analog output • Verification of loop of analog and pulse output • Verification of self diagnosis message

➡ NOTE *1 : It is necessary to install the dedicated driver. (The driver software is saved in CD–ROM of LinkTop.)

* : Specifications of PC (operating environment)

- PC / AT compatible machine (DOS/V)
- OS: Windows XP, Windows Vista, Windows 7 to 11 (English or Japanese version is supported) The application software (LinkTop) has English OS version and Japanese OS version.
- RAM: 8MB or more
- Hard disk: 10MB or more free space
- Equipped with USB port

All specifications are subject to change without notice for improvement.

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OVAL Corporation
Head Office: 10-8, Kamiochiai 3-chome, Shinjuku-ku, Tokyo, Japan
Phone. 81-3-3360-5121 Fax. 81-3-3365-8605