OVAL INSTRUCTIONS

Ins. No. E-020-6-E

SMART COMMUNICATION UNIT
MODEL EL 2310-01E □□□

Applicable flowmeter: Vortex Flowmeters

Smart EX DELTA Ⅱ
Smart EX DELTA Ⅱ DIA

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

CONTENTS

Shown in this manual are the signal words NOTE, CAUTION and WARNING, as described in the examples below:

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

⚠ CAUTION : Caution statements signal the user about hazards or unsafe practices which could result in minor personal injury or product or property damage.

⚠ WARNING : Warning statements signal the user about 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 Smart Communication Unit Model EL2310 which operates in the Microsoft operating system Windows environment.
The EL2310 is a communication terminal designed for use in combination with a personal computer (hereinafter referred to as PC) and any one of the OVAL Smart series flowmeters to set up, alter, adjust, or read out parameters and variables, through interactive communications, locally at the point of measurement or from a terminal in a remote location. Using a Windows PC at hand, you can monitor multiple windows on its screen.

※The EL2310 operates on the application software "LinkTop" furnished.

2. BEFORE YOU BEGIN

2.1 Inspection Upon Receipt

※Be sure you have the following items.
Remove the products from the EL2310 carton and make sure you have all the components required.

CD-ROM (one)
(LinkTop and driver)

Interface Adapter

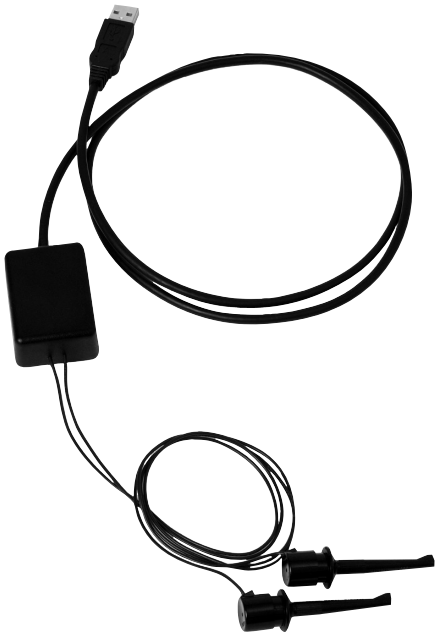

Fig.1

➡ NOTE: For the installation of “LinkTop” and the interface driver, refer to “Installation Procedure Manual”.

2.2 Hookup with Associated Equipment and Devices

Equipment set-up with associated equipment and devices are shown in Fig. 2.

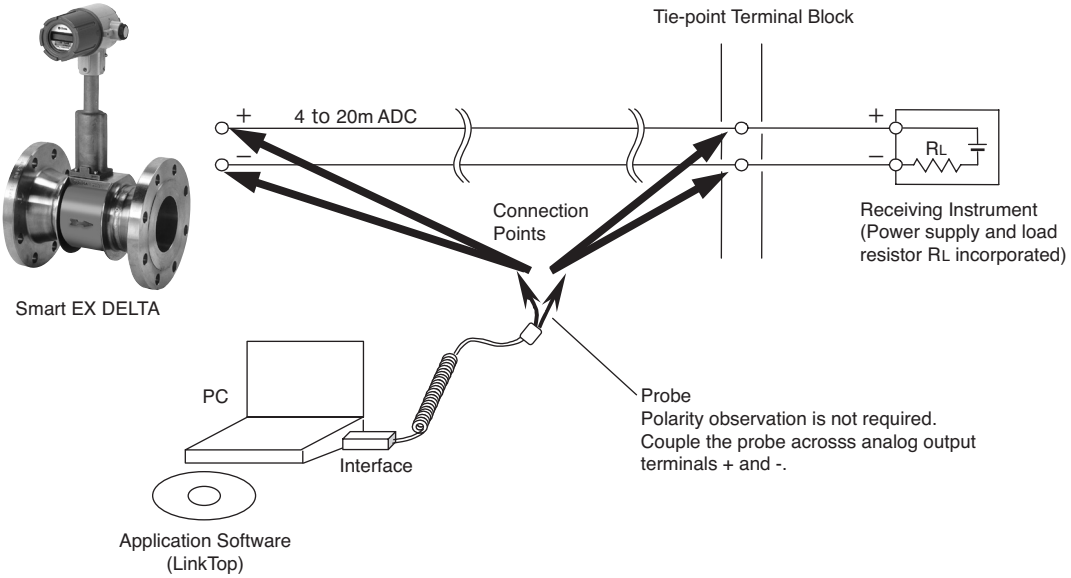

Fig.2

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

◇PC/AT compatible (DOS/V machine)
◇Operating system is the Windows 2000, Windows XP, Windows Vista, Windows 7 to 11.
◇RAM: 8MB or larger.
◇Hard disk: 10MB or larger
◇Provision of USB port

The receiving instrument in the figure above requires a load resistance 250Ω min. Its upper limit depends on the specification of transmitter used.
If the receiving instrument does not have a built-in RL, use it with an external RL connected in series.

2.3 PC Interface Adapter

Comprised of components as shown in Fig. 3, it converts the flowmeter transmitter signal (Bell 202) into the USB signal.

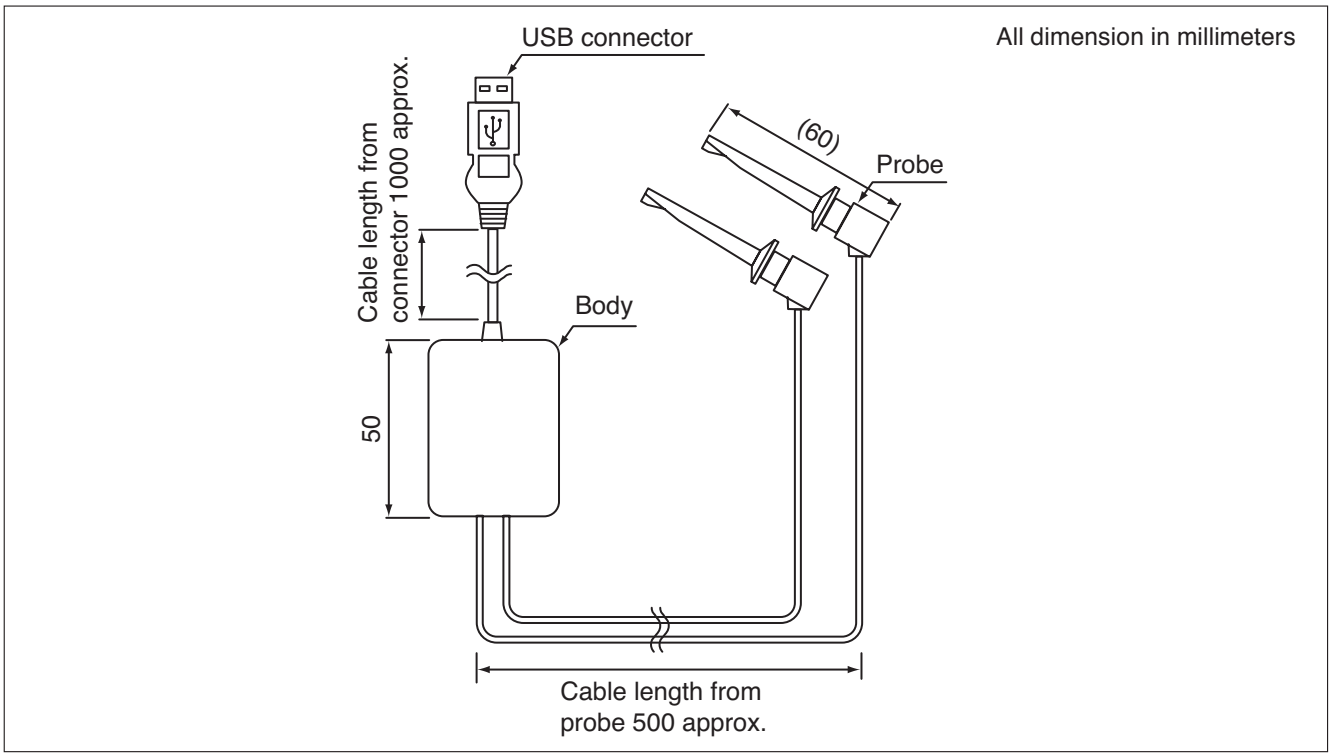

Fig.3

3. EL2310 OPERATION

3.1 About LinkTop Screen

Fig. 4 shows how the LinkTop window looks.

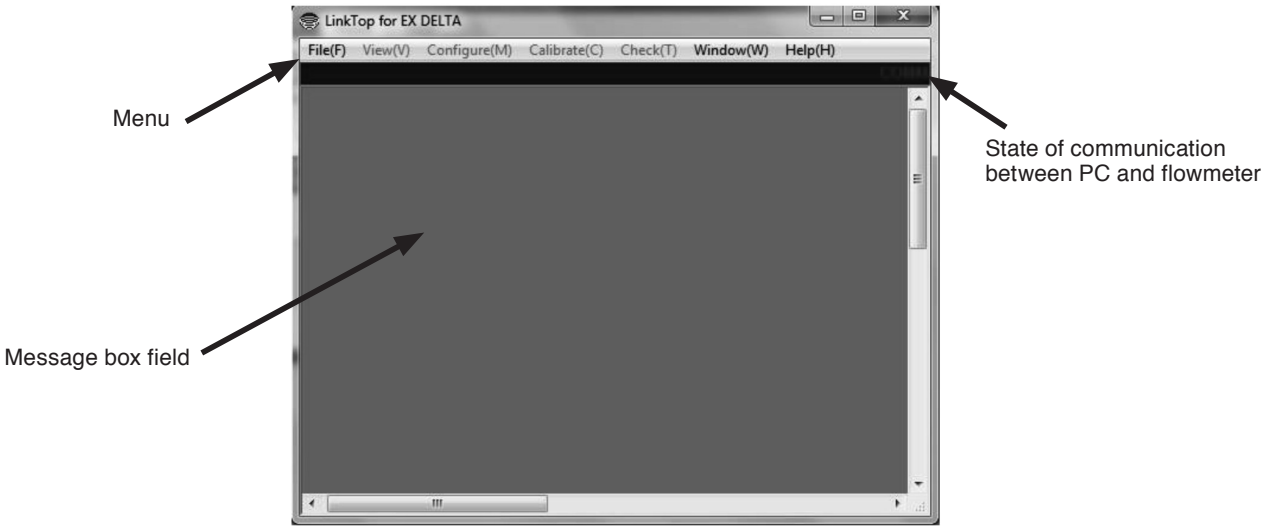

Fig.4

The state of communications at top right of the screen is indicated by:

◇ During communications: Blue light

◇ EEPROM being written: Yellow light

◇ Error exists: Red light

3.2 Starting the LinkTop and Connections

① Hook up the flowmeter transmitter, interface adapter, and "LinkTop" preinstalled PC as shown in Fig. 2.
② To get the LinkTop up and running, click "Start" at lower left of the PC screen and click "LinkTop for EX-DELTA (E)" from "Program".
③ Click "Port setting (I) Ctrl + I" in "File (F)" at the top-level menu of screen.

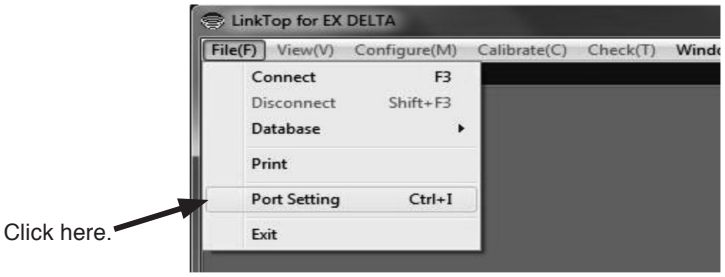

Fig.5

④ Set up the port.
Select the option labeled COM □ (USB) and click "OK" (□ is the port number connected to the interface).

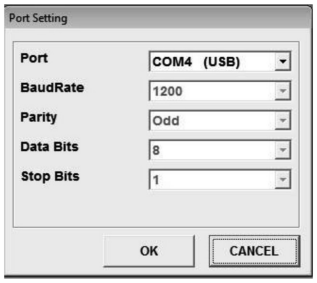

Fig.6

⑤ On the screen as shown in Fig. 7, click "Connect (C) F3" in "File (F)" at the top-level menu of screen.

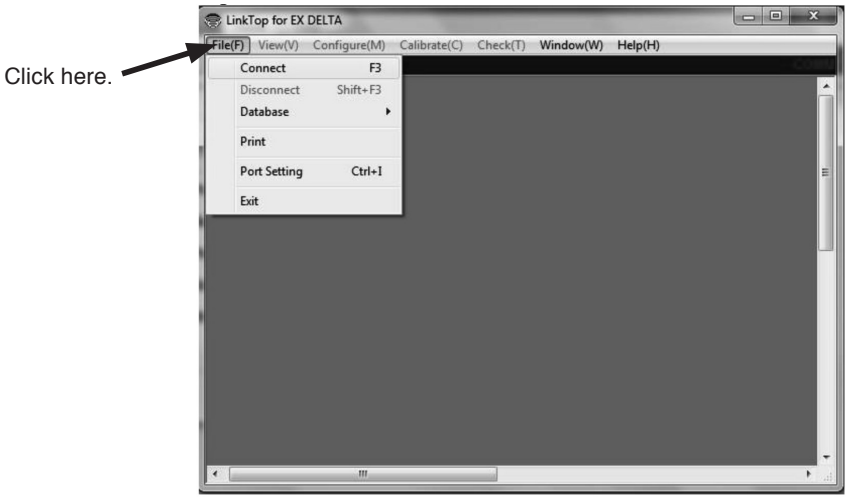

Fig.7

⑥ Specify the polling address of the flowmeter on the window as shown in Fig. 8. (Default polling address is "0".)
If the polling address is unknown, click on the arrow on the right side and select "0-15" from the drop-down list as shown in Fig. 9 to find the polling address automatically.

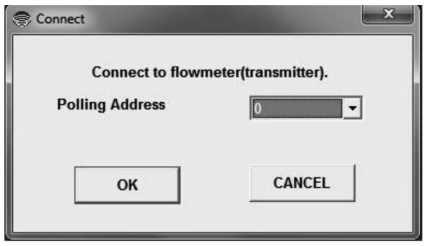

Fig.8

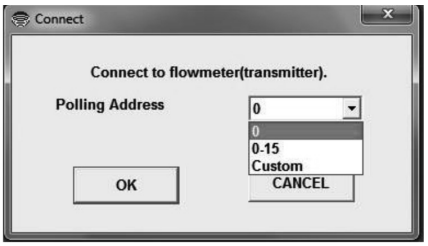

Fig.9

⑦ Click "OK" after specifying the polling address. A message box (Fig.10) appears, and the connection begins. While communicating, ○—○ on the upper right corner of the screen will be blinking.

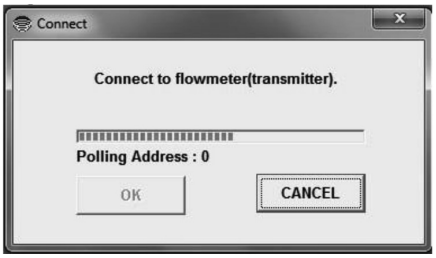

Fig.10

⑧ When associated equipment and devices are connected incorrectly, proper communications will fail to take place.

⑨ Upon completion of connections, a message box like the one in Fig. 11 appears. Click "OK" button.

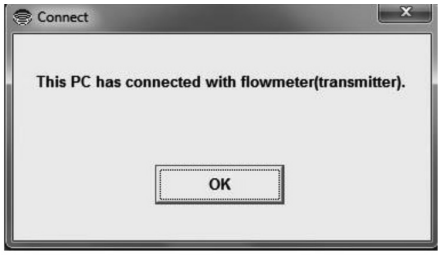

Fig.11

⑩ When connection is complete, of the menus at the top-level menu of screen, certain items that had been dimmed and unable to select become available (menu characters turned black).

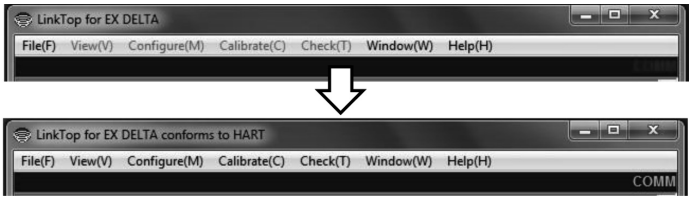

Fig.12

3.3 Terminating the Connection

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

① Click on "File (F)" at top-level menu on the screen as shown in Fig. 13, select "Disconnect (U) Shift + F3".

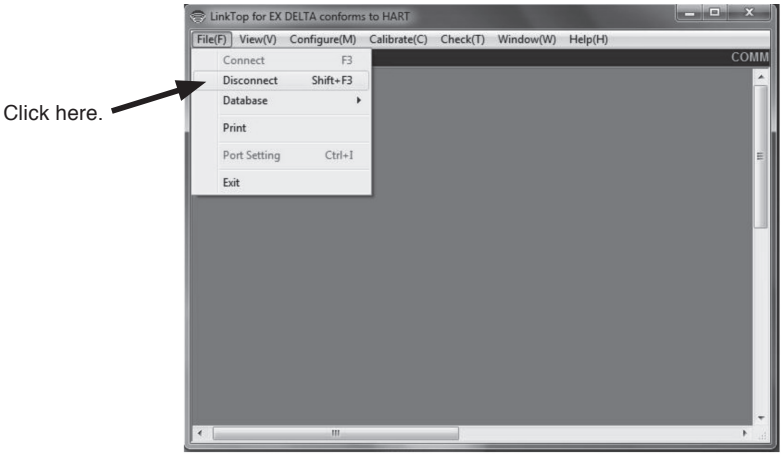

Fig.13

② At the message box as shown in Fig. 14, click on "OK". This brings the connection between the flowmeter and LinkTop to come to an end.

③ Clicking on "Cancel" abandons the process of terminating the connection.

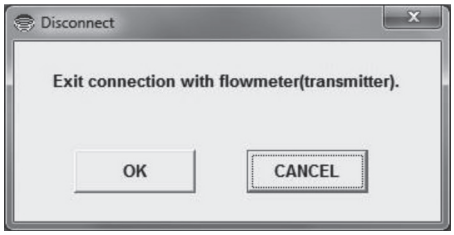

Fig.14

④ When connection is terminated, part of the menu becomes inactive (characters indicated in gray) as shown in Fig. 15.

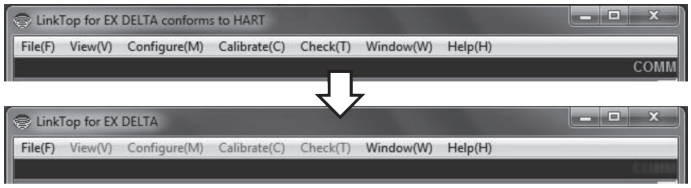

Fig.15

3.4 Terminating the LinkTop

To exit the LinkTop, click on "File (F)" at top-level menu of the screen, select "Exit (E)", and click on again. A message box as shown in Fig. 16 appears. If you are sure to exit the LinkTop, click on "OK" button. Clicking on "OK" button will cause the application window to disappear from the desktop.
To abort the terminating process, click on "Cancel".

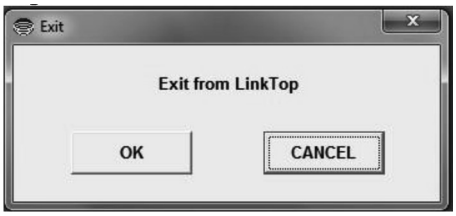

Fig.16

3.5 Menu: View

At "View", information on process variables (instantaneous flowrate, total flow), analog output levels (4 to 20mA) relative to the span flowrate (full scale value), parameters and flowmeter information can be reviewed.

3.5.1 Measure

① Click on "View (V)" at top-level menu of the screen as shown in Fig. 17, select "Measure (P)" and click on again.

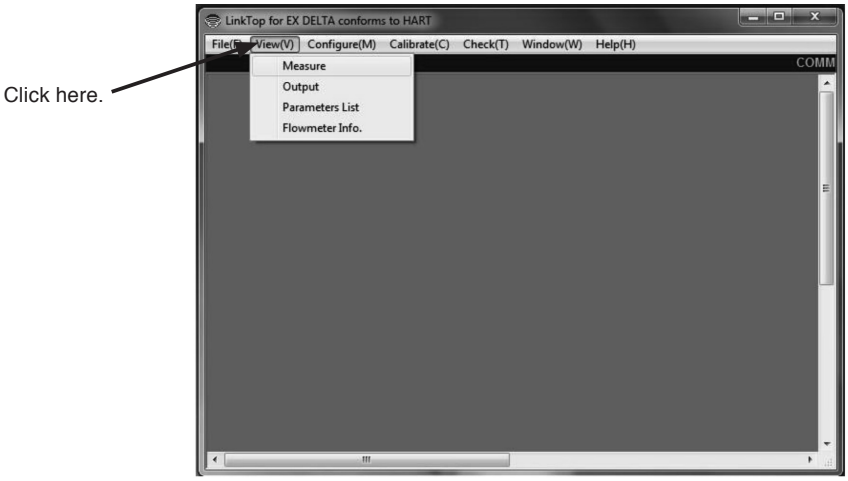

Fig.17

② A message box for process variables as shown in Fig. 18 appears.

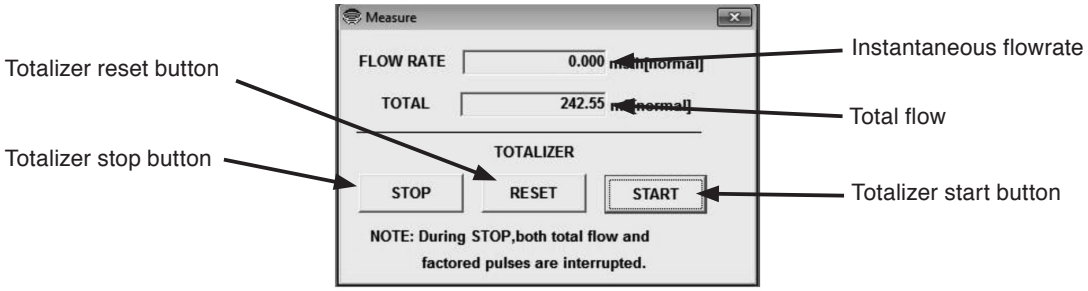

Fig.18

③ Clicking on "START" button triggers the totalizer to start counting the flow.
④ This total flow reading remains valid from the moment "START" button is pressed until "STOP" button is pressed. Clicking on "STOP" button interrupts counting the total flow until "START" button is pressed.
⑤ Clicking on "RESET" button resets the total flow to zero (clears the reading). This button remains operative whether the measuring process is in progress or not.
⑥ To hide the message box, click on ✕ at top right of the screen.

⚠ CAUTION

While a message box "Measure" stays on, menus "Setup", "Adjust", and "Check" remain disabled.

3.5.2 Output

① Click on "View (V)" at top-level menu of the screen, select "Output (O)" and click on again.
② A message box for output as shown in Fig. 19 appears.

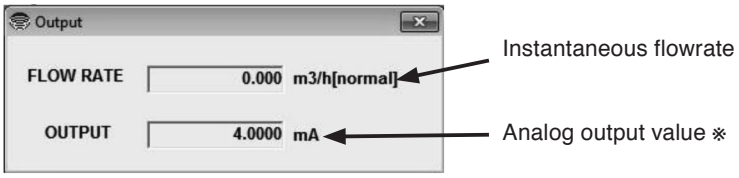

Fig.19

③ The top row of the box indicates the current instantaneous flowrate; the second row indicates the analog output (4 to 20mA) relative to the instantaneous flowrate.
④ To hide the message box, click on ✕ at top right of the screen.

※ This analog output value is a result of internal calculations performed with respect to the span flowrate and may possibly differ from actual milliamp output.

⚠ CAUTION

While a message box "Output" stays on, menus "Setup", "Adjust", and "Check" remain disabled.

3.5.3 Parameters List

① Click on "View (V)" at top-level menu of the screen, select "Parameters list (L)" and click on again. And a message box as shown in Fig. 20 appears, indicating available parameters and other factors associated with the flowmeter.

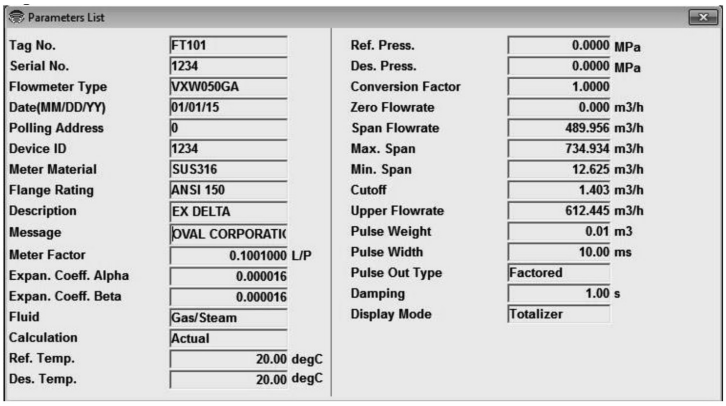

Fig.20

② You cannot rewrite any of these parameters here, however.
Parameters may be changed at "Menu: Configure".
For information about individual parameters, see the instruction manual for the flowmeter.

③ To hide the message box, click on ✕ in the top right corner of the screen.

3.5.4 Flowmeter Information

① Click on "View (V)" at top-level menu of the screen, select "Flowmeter info. (T)" and click on again.
② A message box as shown in Fig. 21 appears, indicating the flowmeter information.

Fig.21

③ To hide the message box, click on ✕ at top right of the screen.

3.5.5 Over Range Indication

When the instantaneous flowrate exceeds a preset limit, an alarm massage appears. If it exceeds "Span flowrate", a "Full scale over" message appears.

Fig.22

This message appears only when communications between the flowmeter and LinkTop are taking place.

3.6 Menu: Configuration

At "Configure", parameters of the flowmeter and transmitter information, etc. can be set up.

⚠ CAUTION

To prevent erratic behavior attributable to a set of conflicting parameters, the electronic circuitry is so configured that such parameters automatically adjust with each other so that only an acceptable set of parameters are established for the right operating conditions.

To be successful in selecting the right configuration, we recommend you to follow the setup procedure in steps ① through ④ of this section.

Upon completion of modifying setpoints, reaffirm the new settings against the "Parameters list" or on the "Database window".

While any message box in the menus stays on, "Measure" and "Output" in the "View" menu are not shown.

3.6.1 Transmitter Information

① Click on "Configure (M)" at top-level menu of the screen as shown in Fig. 23, select "Transmitter Info. (I)" and click on again.

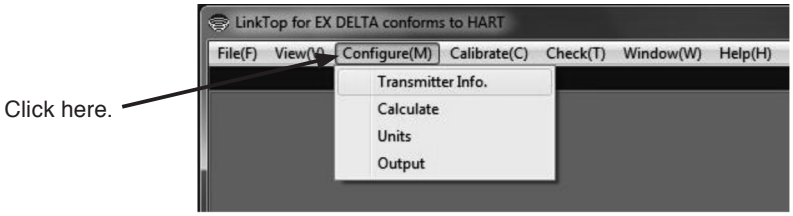

Fig.23

② A "Transmitter Info." setup window as shown in Fig. 24 appears.

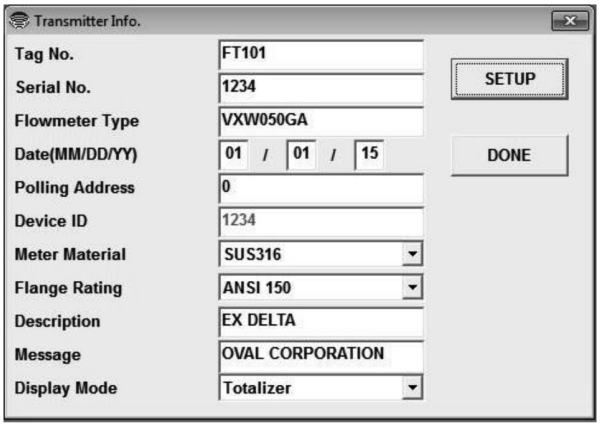

Fig.24

③ Enter appropriate values, etc. in the respective fields. For "Meter Material", "Flange Rating", and "Display Mode", click on the arrow at right and select your options from the dropdown list.

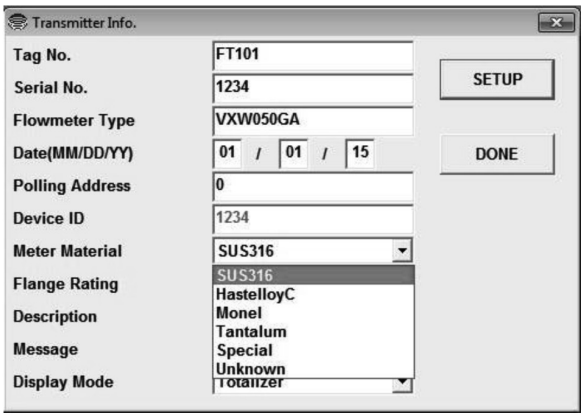

Fig.25

④ After filling in all the fields required at ③, click on "SETUP" button. And a message box as shown in Fig. 26 appears in response.

⑤ Clicking on "SETUP" at this point changes the previous settings to the new settings just entered. However, the flowmeter output also changes with the changes in settings made. For safety's sake, therefore, in applications where the flowmeter output controls valves or other devices, it is suggested that the affected control loop be switched to manual so as to keep the control loop free from the influence of flowmeter output.

Clicking on "SETUP" and transferring the settings made on the PC to the flowmeter causes an indicator "◯-◯" at top right of the screen to come on in light blue, eventually turn to yellow and then light blue again before it goes out.

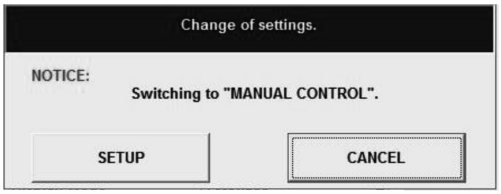

Fig.26

⑥ At a message box as shown in fig. 27, clicking on "OK" button completes the setup.

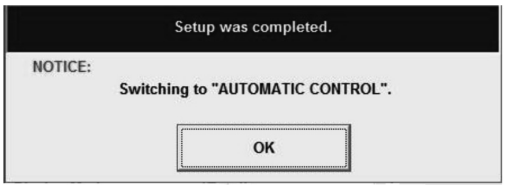

Fig.27

⑦ After clicking on "OK" button, the message box for filling in the fields appears again. Click on "DONE" button to allow the message box to disappear.
⑧ To abort the setup, click on "DONE" or "CANCEL" button in the course of steps ② through ④.
⑨ Shown below are the contents of "Meter Material", "Flange Rating" and "Display Mode" in the dropdown list.

Table 1 Meter Material

SUS316	Monel	Special
Hastelloy C	Tantalum	Unknown

Table 2 Flange Rating

JIS 10K	ASME 150	Special
JIS 20K	ASME 300	Unknown
JIS 30K	ASME 600	

Table 3 Display Mode

Totalizer	%Flowrate	% Bar Graph
Flowrate		

⑩ The settable range for polling address is 0 to 15.
The default setting is "0".

⑪ Device ID cannot be modified since it is the individual identification of the flowmeter transmitter.

⚠ CAUTION

Following the changes in parameters, verify, by comparing against the Parameters list or the Database Screen, that the settings have been changed correctly.

3.6.2 Calculation

① Click on "Configure (M)" at top-level menu of the screen, select "Calculate (C)" and click on again.
② A message box like the one in Fig. 28 concerning the "Calculation" appears.

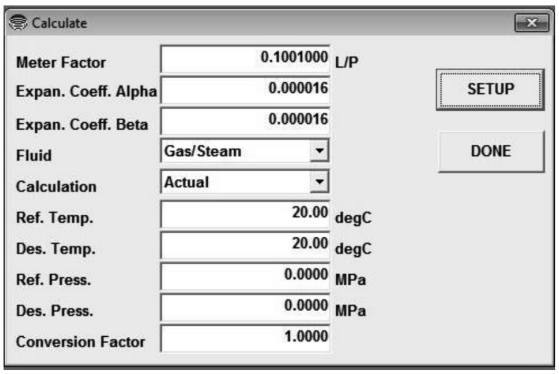

Fig.28

③ Fill in the fields with the appropriate parameters.
For "Fluid" and "Calculation", click on the arrow mark at right and select necessary items from the dropdown list.
For "Fluid", select either "Liquid" of "Gas/Steam".

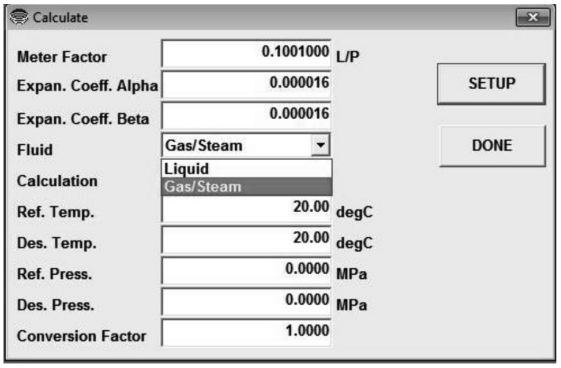

Fig.29

④ After filling in all the fields required at ③, click on "SETUP" button. A message box as shown in Fig. 30 then appears.

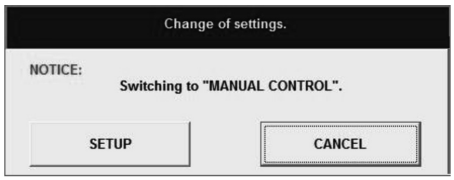

Fig.30

⑤ Clicking on "SETUP" at this point changes the previous settings to the new settings just entered. However, the flowmeter output also changes with the changes in settings made. For safety's sake, therefore, in applications where the flowmeter output controls valves or other devices, it is suggested that the affected control loop be switched to manual control so as to keep the control loop free from the influence of flowmeter output.
Clicking of "SETUP" and transferring the settings made on the PC to the flowmeter causes an indicator "◯-◯" at top right of the screen to come on in light blue, eventually turn to yellow and then light blue again before it goes out.
A message box like the one in Fig. 31 appears. Click on "OK" button to complete the setup.

Fig.31

⑥ Following "OK" button click, the screen goes back to a message box for entering menu items; click on "DONE" button to hide the message box.
⑦ To abort the setup, click on "DONE" or "CANCEL" button during the course of steps ② through ④.
⑧ The contents of "Calculate" in the dropdown list are shown below.

Table 4 Types of Calculation

Actual Flowrate	Saturated Steam	Superheated Steam
T/P Compensation		

※ In liquid measurement, the actual flow calculation is the only one that can be chosen.

⚠CAUTION

Following the changes in parameters, verify, by comparing against the parameters list or the database, that the settings have been changed correctly.

3.6.3 Units of Measure

① Click on "Configure (M)" at top-level menu of the screen, select "Units (U)" and click on again.
② A message box for "Units" setup as shown in Fig. 32 appears.

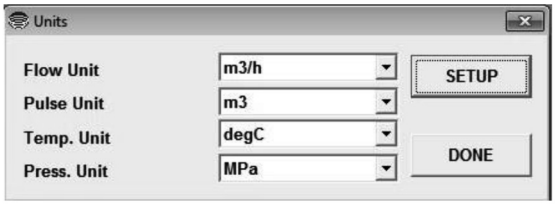

Fig.32

③ Fill in individual fields with the appropriate units. Click on the arrow mark to the right of each field and select your option from the dropdown list.

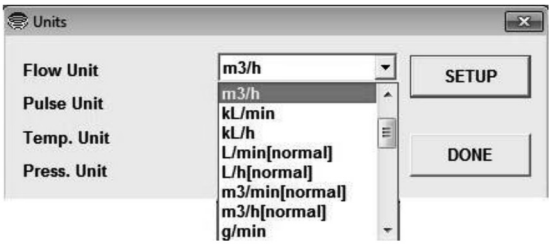

Fig.33

④ After filling in all the fields, click on "SETUP" button. A message box as shown in Fig. 34 appears in response.
For safety's sake, change the control loop to manual control before you click on "SETUP".

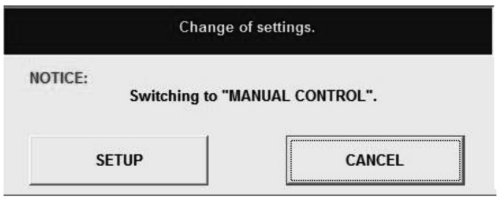

Fig.34

⑤ Clicking on "SETUP" and transferring the settings made on the PC to the flowmeter causes an indicator "◯-◯" at top right of the screen to come on in light blue, eventually turn to yellow, and then light blue again before it goes out.
A message box as shown in Fig. 35 appears. Clicking on "OK" button completes the setup.

Fig.35

⑥ After clicking on "OK" button, the message box for filling in the fields appears again. Click on "DONE" button to hide the message box.
⑦ To abort the setup, click on "DONE" or "CANCEL" button during the course of steps ② through ④.

⚠ CAUTION

Following the changes in parameters, verify, by comparing against the Parameters list or the Database Screen, that the settings have been changed correctly.

⑧ Shown below are the available units of measure in each menu.

Table 5 Instant Flowrate Units

L/min	g/min	ft^3/sec*1
L/h	g/h	ft^3/min*1
m^3/min	kg/min	ft^3/h*1
m^3/h	kg/h	SCFS*1 (=ft^3/sec [standard])
kL/min	t/min	SCFM*1 (=ft^3/min [standard])
kL/h	t/h	SCFH*1 (=ft^3/h [standard])
L/min [normal]	ton (US) /min	lb/ min*1
L/h [normal]	ton (US) /h	lb/h*1
m^3/min [normal]	gal (US) /min*1	
m^3/h [normal]	gal (US) /h*1	

Table 6 Total Flow and Factored Pulse Units

L	g	ft^3*1
m^3	kg	SCFT*1 (=ft^3 [standard])
kL	t	lb*1
L [normal]	ton (US)	
m^3 [normal]	gal (US) *1	

Table 7 Temperature Units

℃	°F	K

Table 8 Pressure Units

Pa	kgf/cm^2	atm
kPa	mmHg	Torr
MPa	psi	
gf/cm^2	bar	

* 1: Units of measurement above do not apply to certain flowmeters. See the section "PARAMETER SETUP" in the instruction manual of the flowmeter to be used.

3.6.4 Flowrate Output

① Click on "Configure (M)" at top-level menu of the screen, select "Output (O)" and click on again.

② A message box as shown in Fig. 36 appears. At "Output", parameters related to the output of a flowmeter can be setup.

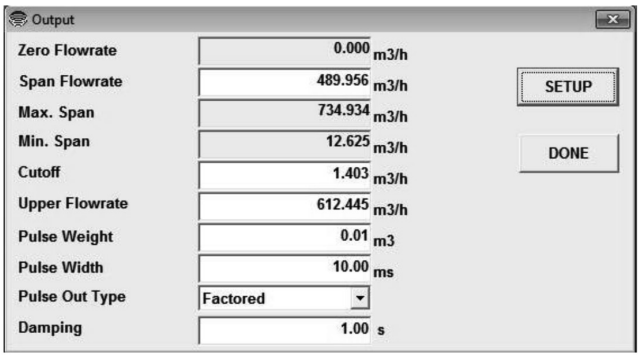

Fig.36

③ After filling in the appropriate parameters in individual fields, click on "SETUP" button. For "Pulse Out Type", click on the arrow mark at right as shown in Fig. 37 and select "Factored" or "Unfactored" from the dropdown list.

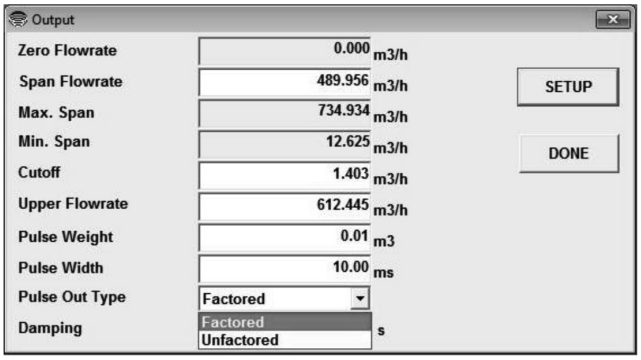

Fig.37

"Zero Flowrate" remains always "0" and cannot be set to any other rate.

The Max., Min., Span Flowrate are the factors calculated automatically from the contributing settings, including the flowmeter type and other parameters; they are not user defined factors.

④ Clicking on "SETUP" brings up a message box as shown in Fig. 38.

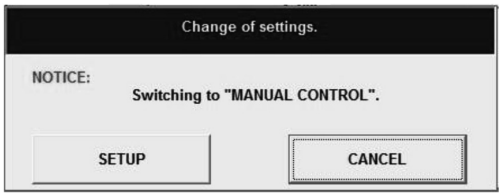

Fig.38

⑤ Clicking on "SETUP" at this point changes the previous settings to the new settings just entered. However, the flowmeter output also changes with the changes in settings made, for safety's sake, therefore, in applications where the flowmeter output controls valves or other devices, it is suggested that the affected control loop be switched to manual control so as to keep the control loop free from the influence of flowmeter output.

Clicking on "SETUP" and transferring the settings made on the PC to the flowmeter causes an indicator "◯-◯" at top right of the screen to come on in light blue, eventually turn to yellow and then light blue again before it goes out.

A message box like the one in Fig. 39 appears. Click on "OK" button to complete the setup.

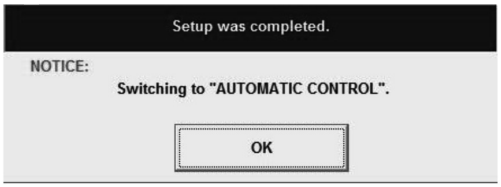

Fig.39

⑥ Following "OK" button click, it goes back to a message box for entering menu items; click on "DONE" button to hide the message box.

⑦ To abort the setup, click on "DONE" or "CANCEL" button during the course of steps ② through ④.

⚠ CAUTION

Following changes in parameters, make sure, by comparing against the parameters list or the Database Screen, that the settings have correctly been changed.

3.6.5 Communication Error

In case some faulty data has inadvertently been entered at "Menu: Configure", an attempt to communicate with the flowmeter at any time will cause an error box to appear on the desktop with a message "Communication error". This error box can also be opened from "Menu: Window".

① After filling in all the fields for setup and Clicking on "SETUP", if any error is found in settings, an error box as shown in Fig. 40 appears. Click on "OK" button.

Fig.40

② A little later, an error box "Communication error" as shown in Fig. 41 appears.
Confirm the nature of error at this point.
The faulty setup data that has been entered is canceled and the previous setup data is restored.
For safety's sake, check the current settings against those in the parameters list or the database by opening the respective window.

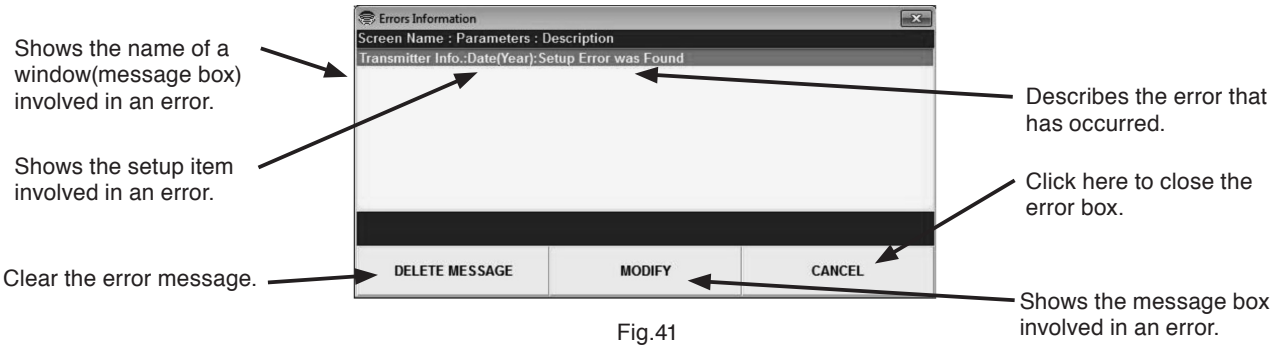

Fig.41

3.7 Menu: Calibration

The analog output of flowmeter transmitter is trimmed at this menu.
The trimming remains inoperative while "Measure" and "Output" windows are shown.
Close them if they stay on before you begin the trimming process.

3.7.1 Analog Output Trim [4-20mA]

① Click on "Calibrate (C)" at top-level menu of the screen, select "Analog Output Trim [4-20mA] (A)" and Click on again.

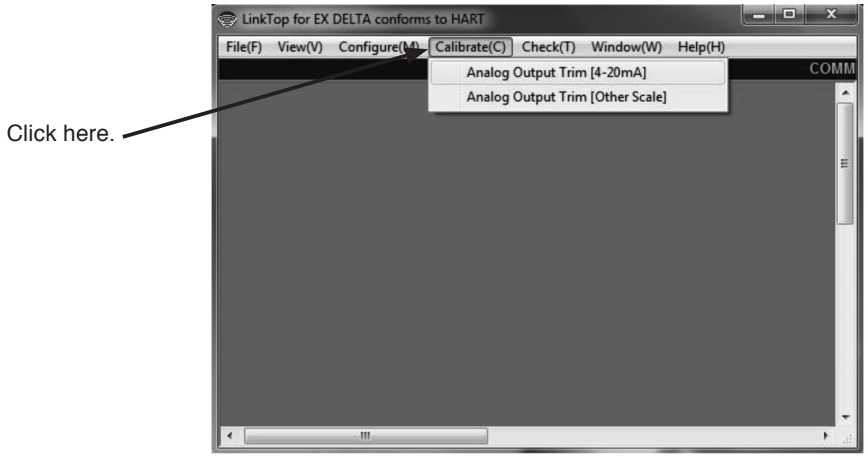

Fig.42

② In this "Analog Output Trim [4-20mA]", the transmitter is made to produce a 4mA and 20mA output, irrespective of the state of the process, to allow their trimming. For safety's sake, in applications where the flowmeter output controls valves or other devices, it is suggested that the affected control loop be switched to manual control so as to keep the control loop free from the influence of flowmeter output.
Clicking on "START" button, firstly the 4mA trim begins. Couple the reference milliammeter in series with the 4-20mA output loop.

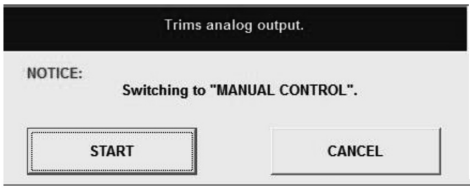

Fig.43

⚠ CAUTION

Following this adjustment, the analog output (4-20mA) from the transmitter will be provided based on the reading of the milliammeter connected. For this reason, the milliammeter to be coupled must be one that has been calibrated and proved accurate enough.

The analog output is accurately adjusted before shipment from the factory and requires no further adjustment.

③ A window like the one shown in Fig. 44 appears. Enter the present reading of the milliammeter which registers an output and Click on "OK" button.

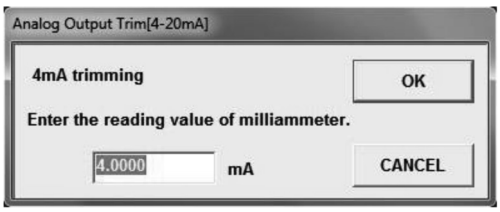

Fig.44

When the reading is transferred, the transmitter automatically trims the output to 4mA. Make sure that the milliammeter connected reads 4mA.

④ You are asked at the prompt "Repeat again?". Click on "YES" if you want to make readjustment, or "NO" if you want to exit the 4mA trim and go to the 20mA trim.

Fig.45

⑤ If you clicked on "NO" and want to work with the 20mA trim, the procedure remains the same as the 4mA trim: make sure that the milliammeter connected reads 20mA.

⑥ Similar to the 4mA trim, you are prompted whether to make readjustment or not.
Click on "YES" to repeat the process, or "NO" to exit the 20mA trim.

⑦ Clicking on "NO" button brings an end to the analog output trim. A message box "Trimming was completed" as shown in Fig. 46 appears. Click on "OK" button.

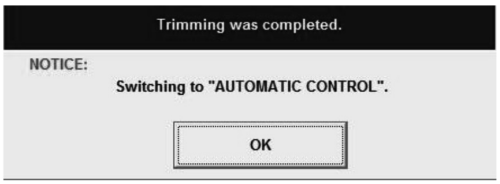

Fig.46

⑧ To abort the trim process, click on "CANCEL" button and follow the instructions at the prompt on the screen.

3.7.2 Analog Output Trim [Other scales]

This "Analog Output Trim [Other scale] " is used to make an analog output trim other than the 4-20mA scale. Described below is the procedure for output trim by connecting a load resistance RL=250Ω in the 4-20mA output loop and adjusting the 1-5V scale (voltage) across the load resistance.

① Click on "Calibrate (C)" at the top-level menu of the screen, select "Analog Output Trim [Other scale] (O)" and click on again.

② In this "Analog Output Trim [Other scale]", analog output corresponding to 4mA and 20mA, respectively, are produced similar to the 4-20mA trim, irrespective of the state of the process. For safety's sake, in applications where the flowmeter output controls valves or other devices, it is suggested that the affected control loop be switched to manual control so as to keep the control loop free from the influence of flowmeter output.
Clicking on "START" button begins the process of analog output scale setup.
Click on "Start" button.

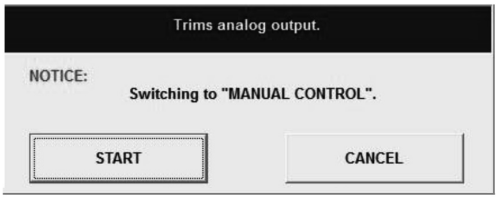

Fig.47

③ Clicking on "START" button brings up a message box as shown in Fig. 48. Entering an analog level (1V in this case) corresponding to the 4mA in the top row field allows a corresponding value to enter automatically in the second row field (20mA).

Entering any value in the bottom box is not required. Entering an appropriate value in the top box will result in filling out the bottom box with a corresponding value.

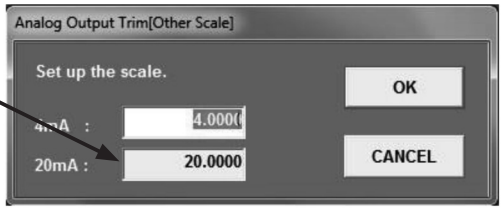

Fig.48

You are ready to work with the analog output trim over the 1-5V scale.
Clicking on "OK" button begins the process from the 1V (4mA) trim. Connect the test instrument (reference voltmeter) across the load resistor RL.

④ Begin with 1V (4mA) trim. A message box like the one shown in Fig. 49 appears.
Key in the reading of the test instrument and Click on "OK".

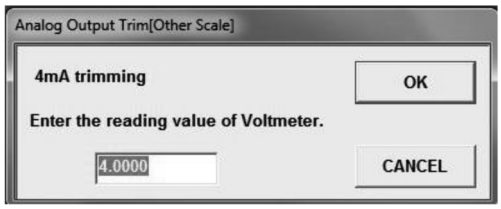

Fig.49

⑤ Similar to "Analog Output Trim [4-20mA]", a dialog box asks you whether you want to repeat the trim or not. Click on "YES" for repeated trim, or "NO" for proceeding to the next 5V (20mA) analog output trim.

⑥ Clicking on "NO" readies for 5V (20mA) trim. Similar to the 1V (4mA) trim, key in the reading of the test instrument and click on "OK" button.
You are similarly prompted whether to repeat the trim or not. Click on "YES" if you desire to do so, or "NO" for terminating the trim.

⑦ Clicking on "NO" button exits the analog output trim. You will see a message box "Trimming was completed" as shown in Fig. 50. Click on "OK" button.

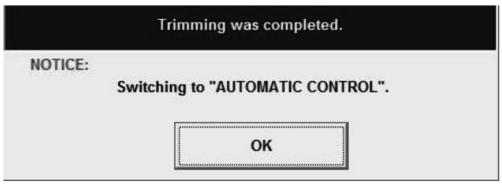

Fig.50

⑧ To abort the trim on the way, click on "CANCEL" button and follow the instructions at the prompt on the screen.

3.8 Menu: Check

You can check the levels of analog output coming in from the flowmeter. Simulated analog output is used to make a loop check of analog output between the flowmeter and the receiving instrument. Since a simulated analog output is available irrespective of the state of the process, it is suggested for safety's sake, in applications where the control loop uses the analog output from the flowmeter, that the affected control loop be switched to manual.

① Click on "Check (T)" at the top-level menu of the screen, select "Analog Output Test (A)" and click on again.

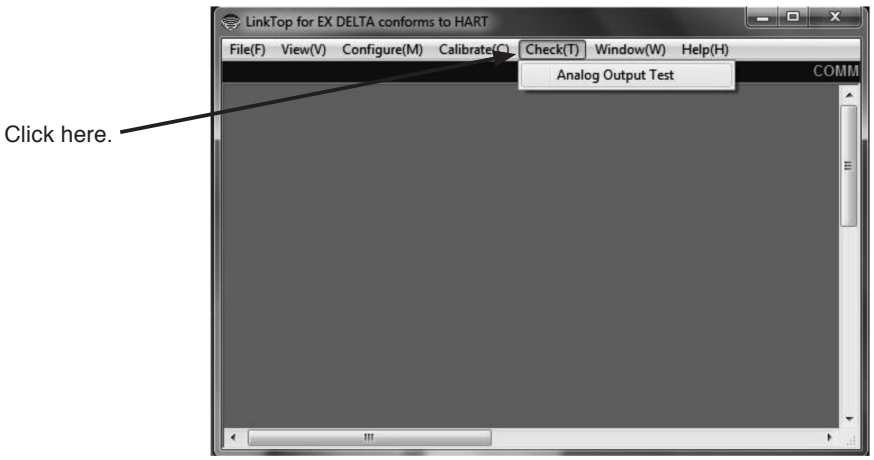

Fig.51

② On a message box as shown in Fig. 52, click on "START" if you want to work with the analog output. To abort the output, click on "CANCEL".

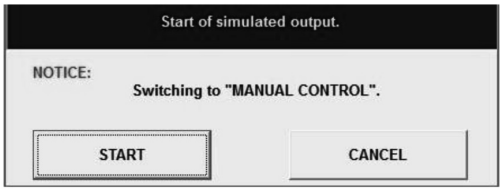

Fig.52

③ A window as shown in Fig. 53 appears. Select your simulated output option and click on "OK" button. If your option is an analog output (any current value between 4 and 20mA) other than "4mA" and "20mA", then select "Other", key in the desired analog mA magnitude, and click on "OK".

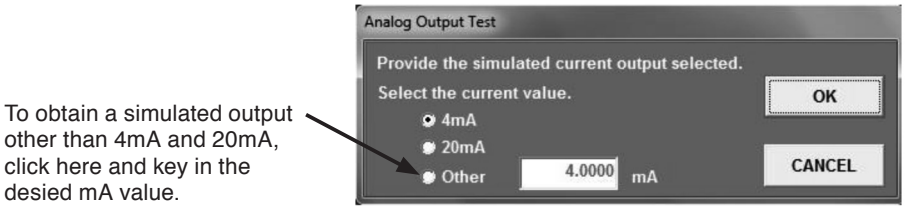

Fig.53

④ Clicking on "OK" at ③ starts producing the analog output you selected. While this simulated output continues, a message box as shown in Fig. 54 stays on the screen.
To stop the output, click on "YES" button.

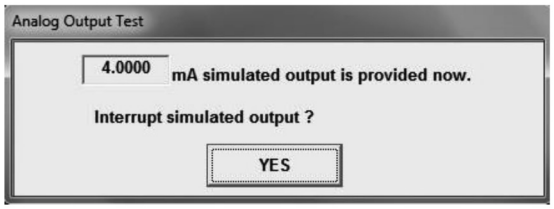

Fig.54

⑤ Clicking on "YES" button allows the message box shown in Fig. 53 to reappear. To check other output levels, follow the same setup and operations as outlined in ③. To exit "Analog Output Test", click on "CANCEL" at the message box in Fig. 53.

3.9 Menu: Window

Opening the "Database Screen" or "Communication error" window provides you with quick grasp of any error that has occurred. While multiple message boxes are opened on the screen, you also can switch any of the message boxes from active to inactive, and vice versa.

3.9.1 Database Screen

The window allows communications with the flowmeter and displays the parameters currently set up in the flowmeter.

① Click on "Window (W)" at the top-level menu of the screen, select "Database Screen" and click on again.

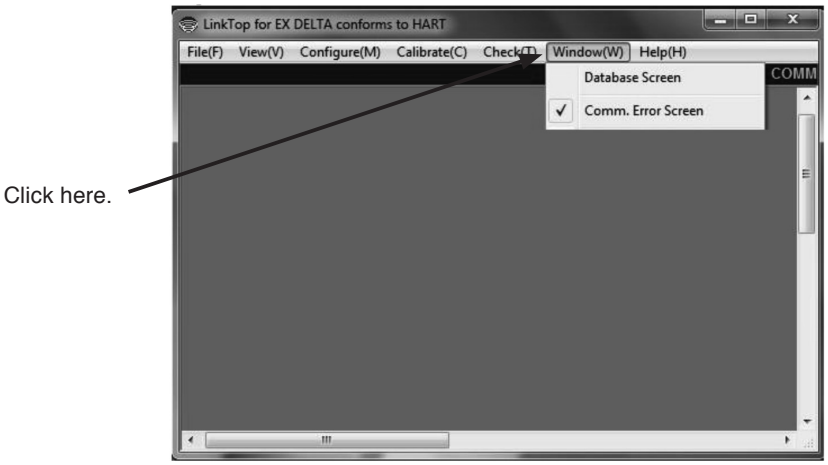

Fig.55

② A database screen (List of Parameters) as shown in Fig. 56 below appears, indicating the parameters of the flowmeter currently connected.
At this window, "Date (12 characters)" , "Tag No.", "Model", and "Serial No." (20 characters) at top right of the window can be entered (in alphanumerics).

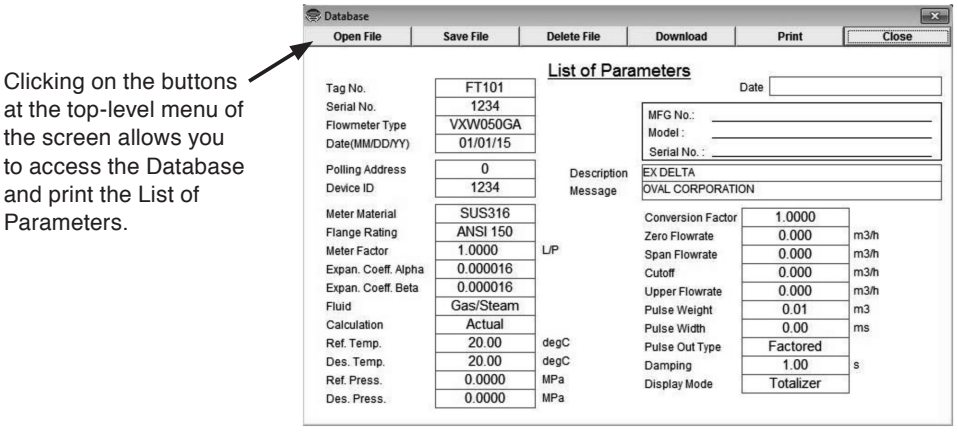

Fig.56

③On this window, you also can work with the database ("Open File", "Save File", "Delete File", "Download") and print the list of parameters. Click on the button assigned to the operation you want to work with.
For details of the operation, see "3.11 About the Database" and "3.13 Printing".

3.9.2 Communication Error

① Click on "Window (W)" at the top-level menu of the screen, select "Comm. Error Screen" and click on again.

② An error box as shown in Fig. 57 appears.
It indicates the message box name and the setup item involved in an error, and its description.

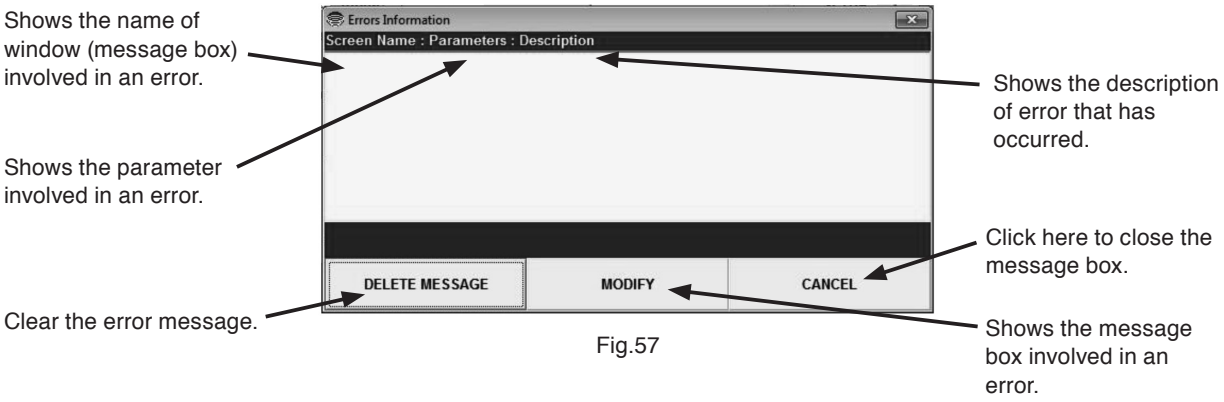

Fig.57

③ To close the message box, click on "CANCEL" button.

④ This communication errors message box also appears when you entered a faulty setting at "Menu: Configure".

3.9.3 Selecting the Windows

When there are multiple message boxes on the screen, you can activate or deactivate any of them.

① Suppose several message boxes exist on the screen as shown in Fig. 58, for example, clicking "Window" at the menu allows the names of message boxes currently present on the screen with active window (s) marked with a check.
(Of the windows you see on the screen below, "3.6.1 Transmitter Info." is shown active.)

Fig.58

② At this point, clicking on the name of the window you want to activate will make that window indicated active.

③ There is another way to switch a window from active to inactive, and vice versa: click on any part in the message box and the window will turn active. See Fig. 58.

3.10 About Write-protect Mode

If it is desired to avoid inadvertent overwriting of parameters, place the "Write-protect" switch of the flowmeter transmitter in the ON position.
Attempting to overwrite the parameters with the write-protect switch ON brings up a message like the one shown below in the window.
To write a specific parameter, place the write-protect switch in "OFF" and type the parameter desired at the prompt of the window.

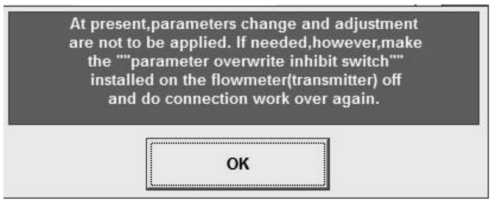

Fig.59

Incidentally, attempting "Connect" with the write-protect switch "ON", the message in Fig. 59 above appears as a warning.
You may review the parameters in this state, however, if you want to enter a parameter, set the write-protect switch in "OFF" first and then click on "Connect" again.

3.11 About the Database

The data (parameter settings) entered at "Menu: Configure" are stored in a form of database which can be transferred to other storages, such as a hard disk or a floppy disk.
You can also download these settings into the flowmeter transmitter and print the entire database (List of Parameters) into a hard copy.

※ Download:
The data on a complete file is transferred to the flowmeter transmitter. This permits the setup data of one flowmeter to be transferred to another to duplicate the setup information of the former.

3.11.1 Open File

You can read the data saved in a file by the procedure below.

① Click on "File (F)" at the top-level menu of the screen, select "Database (F)", select "Open File (R)" and click on again.

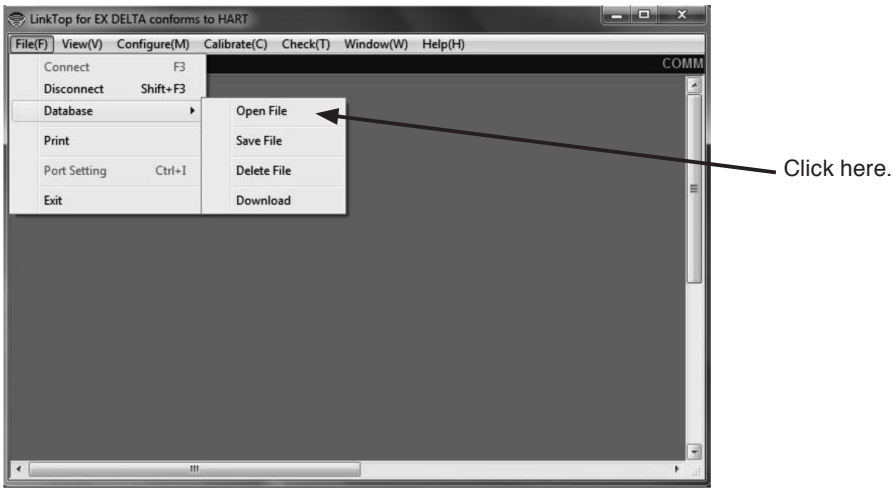

Fig.60

② Select the disk and folder that contains the file you want to open from the dropdown list.

③ Of the files shown, select the one you want to open. Acknowledge "File name (N)" and click on "Open (O)" button.
Only files with the extension ".ove" can be selected.

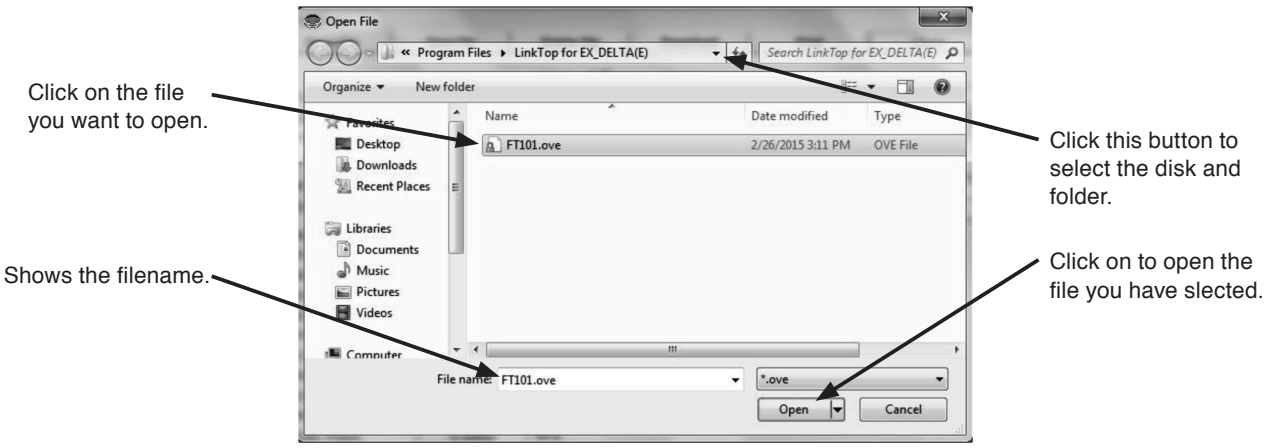

Fig.61

④ The file data selected are shown in a format like the one shown in Fig. 62.

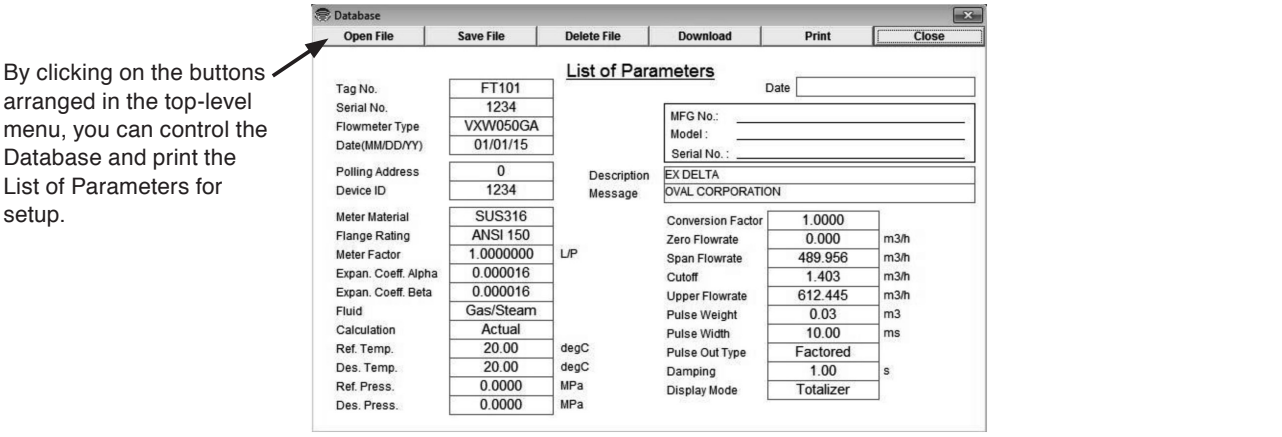

Fig.62

⑤ In this window, you can type in "Date", "Tag No", "Model", and "Serial No." at top right of the window (in alphanumerics).
⑥ To close the window, click on "Close" button or ✕ at top right of the window.
⑦ In this window, you also can work with the database ("Open File", "Save File", "Delete File", "Download") and print the List of Parameters. Click on the button assigned to the operation you want to work with.
For details of the operation, see "3.11 About the Database" and "3.13 Printing".

3.11.2 Save File

You can save the setup data in the flowmeter transmitter into a file. Take the steps given below.

① Click on "Window (W)" at top-level menu of the screen, select "Database Screen" and click on again to show "Database Screen".
② Click on "File (F)" at top-level menu of the screen, select "Database (F)", select "Save File (S)" and click on again.
③ Select from the dropdown list the disk and folder in which you want to save the data.
④ Type in the filenames of the file you want to save. Only files with the extension ".ove" can be saved.
⑤ Click on "Save" button.

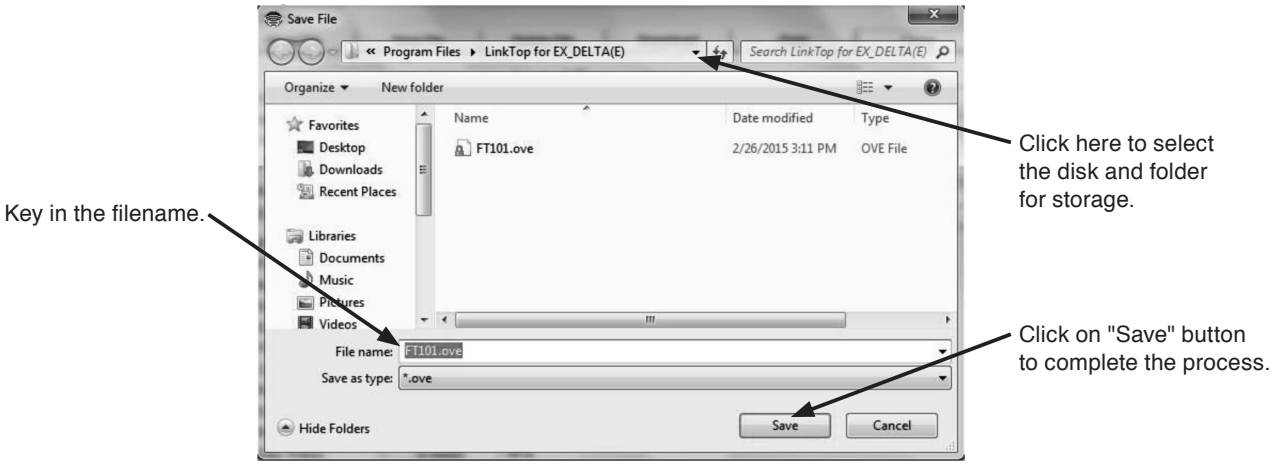

Fig.63

⑥ Saving a file is now complete.
⑦ If you chose the wrong location of storage, click on "Cancel" button and try again.

3.11.3 Delete File

You can delete any file that is no longer necessary. Confirm the data on the "Database Screen" beforehand.

① Click on "File (F)" at top-level menu of the screen, select "Database (F)", select "Delete File (D)" and click on again.
② Select the disk and folder that contains the file you want to remove from the dropdown list.
③ Select the file you want to remove by clicking it. Only files with the extension ".ove" can be deleted.
④ In response to the click, the file you selected opens and a message box as shown in Fig. 65 appears. Click on "YES" button to delete, or "NO" to not delete. Clicking on "YES" deletes that file.

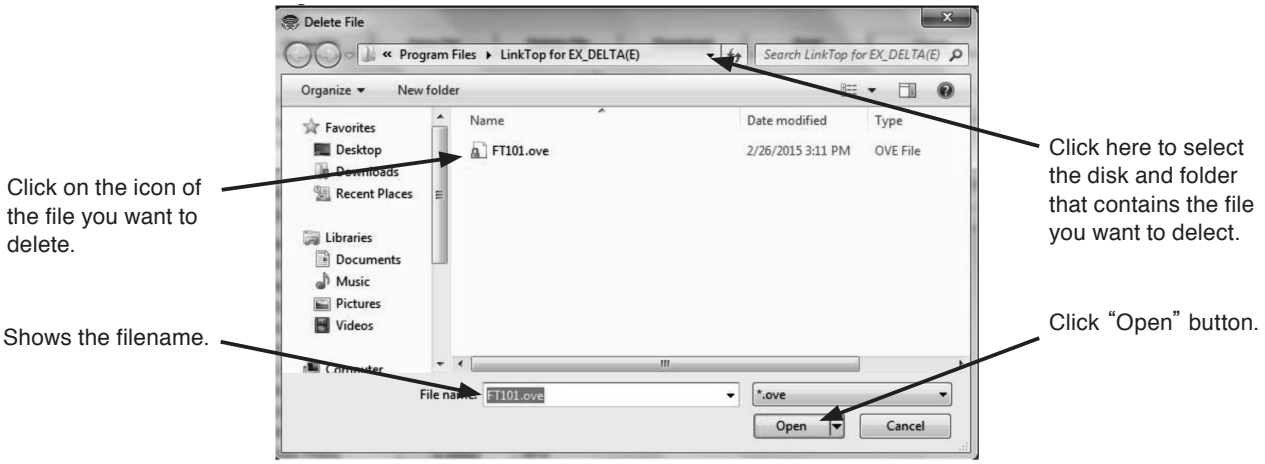

Fig.64

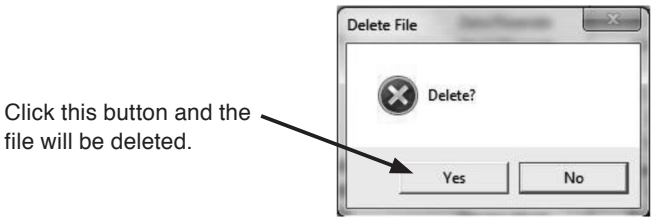

Fig.65

3.11.4 Download

※ Download:
One complete file data is transferred to the flowmeter transmitter. This permits the setup data of one flowmeter to be transferred to another to duplicate the setup information of the former.

① By confirming the parameters currently in the flowmeter, make sure that the flowmeter is subject to downloading before you start downloading. If you want to retain the parameters, follow the instructions outlined in "3.11.2 Save File".
① Following the process of confirming the flowmeter of interest, read the data you want to download according to the procedure outlined in "3.11.1 Open File".
③ Click on "File (F)" at top-level menu of the screen, select "Database (F)", select "Download (T)" and click on again.
④ On seeing a message box like the one shown in Fig. 66, click on "START" button if you want to download data into the transmitter.

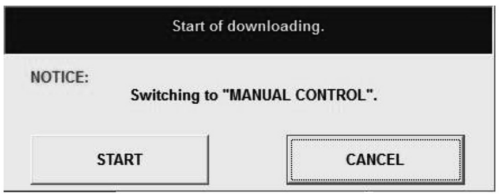

Fig.66

⑤ If you do not want to download, click on "CANCEL" button.
⑥ Downloading the data will result in changes in parameter settings; the output levels from the flowmeter will also change accordingly. For safety's sake, therefore, it is suggested that the control loop be switched to manual.

※ These operations of the database may also be performed by clicking on the appropriate buttons at top-level menu of the database screen in Figs. 56 and 62.

3.12 If There is No Response (Unable to connect with flowmeter)

If communication between the PC and the flowmeter fails for some reason during the use of this application software, you will see a window as shown below. If such is the case, click on "OK" and run the following checks first:

◇ Is the probe of Smart Communication Unit and the unit-to-unit connections in place?
◇ Is power supplied to the flowmeter?

If trouble persists following the above checks, make connections all over again according to the procedure outlined in "3.2 Starting the LinkTop and Connections".

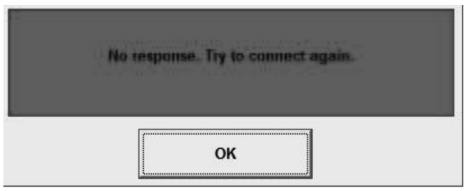

Fig.67

3.13 Printing

You can print the "Database Screen" (flowmeter transmitter specifications).

① Click on "File (F)" at top-level menu of the screen, select "Print (P)" and click on again. Make sure of the data at "Database Screen" in advance.
② On setting the window like the one shown in Fig. 68, type in the name of printer used, the number of copies desired along with other factors required, and click on "OK". With this operation, you can obtain a hard copy of the list of parameters.

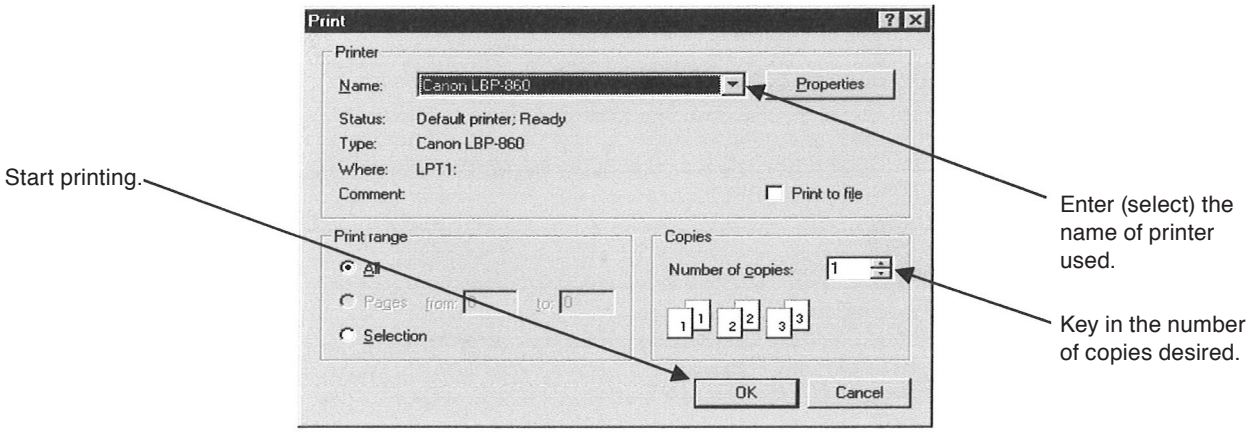

Fig.68

③ To abandon the process of printing, click on "CANCEL" button.
Canceling is valid before you click on "OK" (before the printer starts printing).
④ Shown in Fig. 69 below is the print format.

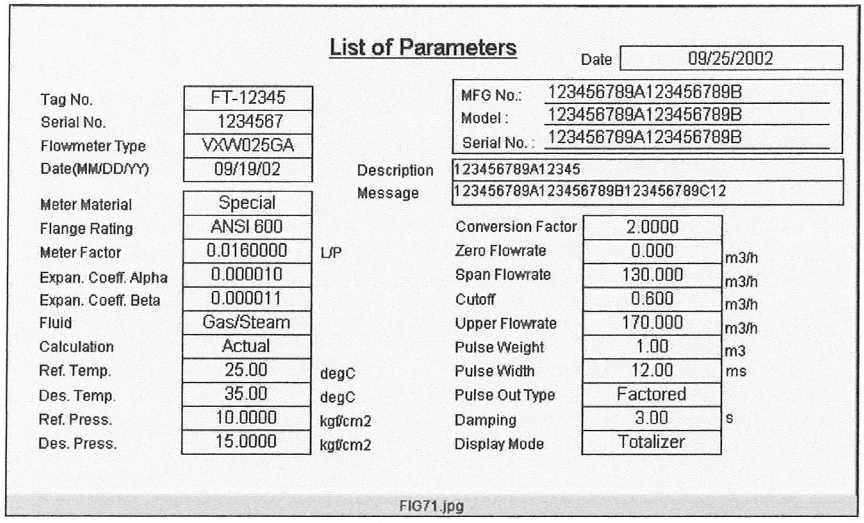

Fig.69

※ This printing procedure can also be taken by clicking on the button at top-level menu of the database screen in Figs. 56 and 62.

4. PRODUCT CODE EXPLANATION

Item	Product Code												Description
	①	②	③	④	⑤	⑥	—	⑦	⑧	⑨	⑩	⑪	⑫	
Model	E	L	2	3	1	0	—							Smart Communication Unit
Power								0						Always “0”
Applicable flowmeter (application software) (※1)									1					Smart EX Delta Ⅱ
Language										0				Less application software (“0” in the 8th digit) (※ 2)
										J				Japanese (Japanese version OS)
										E				English (English version OS)
Interface											0			Less interface (application software only)
											1			Interface provided
Media (application software)												1		CD-ROM
												9		Other than above
Reserved code													0	Always “0”

➡ NOTE: ※ 1 : Application software (LinkTop) for EL2300 with RS-232C connection specification is not usable.

※ 2 : If you purchase an interface as a single item, communication may be unavailable with the combination of the interface and the version of the application software LinkTop in use. Therefore, confirm the version of LinkTop in use and, if communication is unavailable when the LinkTop is combined with the interface, please make sure to purchase the interface and the LinkTop as a set.

Application software LinkTop	Communication availability
Ver. 5.2.1 or earlier	△ ※
Ver. 5.2.2 or later	○

※Communication with the old “SMART EX DELTA” products is unavailable, and communication with the existing “SMART EX DELTA II” products is available.

◆Discrimination between SMART EX DELTA and SMART EX DELTA II by the product code.

Product code	Type
⑯th digit of the old product code, “Version Code”: “A” or None	Smart EX Delta
⑯th digit of the old product code, “Version Code”: “B” or later	Smart EX Delta Ⅱ
Described with the existing product code: All products	

5. GENERAL SPECIFICATIONS

Item		Description
Interface (※1)	Connector	USB (type A)
	Input/output signal	Bell 202 ⇔ USB
	Operating temp.	–5 to +60℃
	Outline dims.	Basic unit: 50W×20H×35D (in mm) Probe: 1500mm approx. (fixed to the interface itself)
	Housing	Plastic (black)
Communication protocol		HART™ protocol
Communication terminal resistance		Load resistance 250Ω min. (Upper limit depends on flowmeter's transmitter specifications.)
Functions		◇ Monitors flowmeter transmitter output. ◇ Reads, sets up, and saves parameters. (Stored in FD, HD, or other external memories.) ◇ Trims analog outputs. ◇ Checks analog output loop. ◇ Confirms diagnostic messages.

➡ NOTES : ※1 Requires installation of a dedicated software. (Driver software is contained in the supplied LinkTop CD-ROM.)

※ Required PC specifications (operating environment)

- PC/AT compatible (DOS/V machine)
- OS: Windows 2000, Windows XP, Windows Vista, Windows 7 to 11 (compatible with Japanese or English version)
  Application software (LinkTop) is available in Japanese OS or English OS version.
- RAM: 8MB or larger
- Hard disk: 10MB or larger
- Provision of USB port

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