

FUJI HART EXPLORER INSTRUCTION MANUAL



Contents

CONTENTS	2
VERSIONS	6
ABOUT THIS GUIDE	7
Purpose	7
Audience	7
Scope	7
FUJI ELECTRIC FRANCE Contact Information	7
INSTALLING THE APPLICATION	8
Using the serial Hart Modem	8
Using the USB Hart Modem	8
Installation example for Windows 2000, XP :	8
Installation example for Windows 98 :	11
Installing the application (FUJI HART EXPLORER)	17
Uninstalling the application	17
STARTING THE APPLICATION	18
What can you do ?	18
MAIN WINDOWS	19
Description	19
The toolbar	20
What can you do ?	20
Communication area	21
What can you do ?	21
General information area	22
The tree view	23
Functionalities	24

Loading a device (online mode)	27
Loading a device in offline mode	29
Working on a device	30
WORKING IN GENERIC MODE	31
Introduction	31
Parameters panels	31
HART general information panel	32
Transmitter information panel	33
Measurement cell information panel	34
Process information panel	35
DEVICE FUNCTIONS	36
Introduction	36
Self test function	37
Introduction	37
Procedure	37
Loop test function	39
Introduction	39
Procedure	39
Dactrim function	41
Introduction	41
Procedure	41
Re range function	43
Introduction	43
Procedure	43
Process values monitoring function	45
Introduction	45
Procedure	45
Saving parameters function	48
Introduction	48
Procedure	48
The saved parameter file will be displayed in the tree view under “off line”.Loading parameters function	48
Introduction	49
Procedure	49
Load an transmitter configuration by clicking on the Load button.Parameters reporting function	49

Introduction	50
Procedure	50
WORKING WITH A “FUJI FCX A-C II PRESSURE TRANSMITTER”	51
Introduction	51
Parameters panels	51
HART general information panel	53
Transmitter information panel	54
Measurement cell information panel	55
Process information panel	56
LCD indicator information panel	58
DEVICE FUNCTIONS	59
Introduction	59
Self test function	60
Introduction	60
Procedure	60
Loop test function	62
Introduction	62
Procedure	62
Dactrim function	64
Introduction	64
Procedure	64
Re range function	66
Introduction	66
Procedure	66
Calibration function	68
Introduction	68
Procedure	68
Process values monitoring function	70
Introduction	70
Procedure	70
Saving parameters function	73
Introduction	73
Procedure	73
Loading parameters function	74

FUJI HART EXPLORER

Introduction	74
Procedure	74
Parameters reporting function	75
Introduction	75
Procedure	75
ANNEXES	76
Communication error	76

Versions

Date	Date	Modification	Author
11/2005	Version 1.0	Creation	P.DURIEZ, J.LAMESCH
01/03/2007	Version 1.1	Add warning	P.DUIREZ

About this guide

Purpose

This guide introduces the features of the software “FUJI HART EXPLORER”, and shows you how to configure, monitor and manage Hart devices.

This software is designed for communicating with devices using Hart protocol. The software gives full functionalities to some devices like “FUJI FCX A-C II pressure transmitter”. The others devices can be used in generic mode.

In the future, the software can be extended by developing plug-in for specific devices.

Audience

This guide is intended for those responsible for setting up Hart devices, and especially Fuji Hart devices. It assumes that you are familiar with the devices and Hart protocol.

Scope

“FUJI HART EXPLORER” allows you to

- work in English or French
- work directly with a device connected (online mode) or work on files (offline mode)
- monitors dynamics variables

FUJI ELECTRIC FRANCE Contact Information

To contact FUJI ELECTRIC FRANCE SA by	Use :
World Wide Web	http://www.fujielectric.fr
Email	sales@fujielectric.fr
Telephone (France)	04 73 98 26 98
Telephone (other locations)	+33 4 73 98 26 98

Installing the application

Using the serial Hart Modem

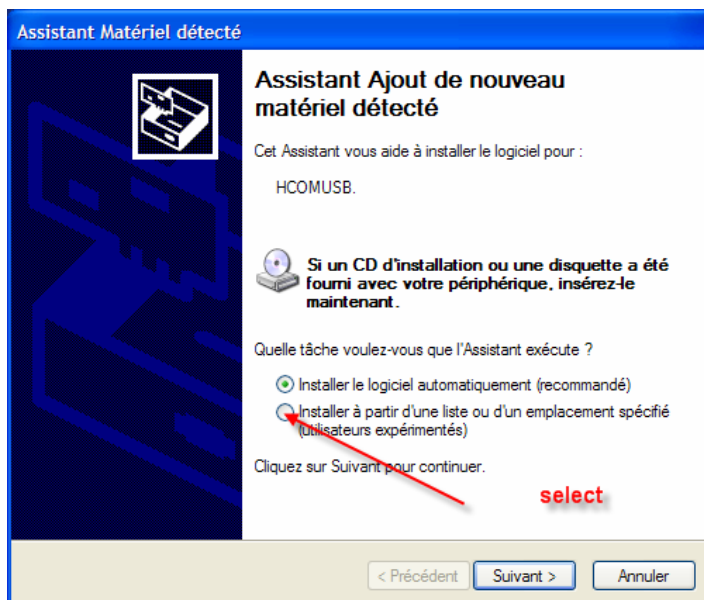
You need not to install the modem, only to connect it. (compatible Windows 98, 2000, XP)

Using the USB Hart Modem

You need to install the driver for the USB Hart Modem.

- Power on your computer.
- Plug in the modem. Windows will detect a new device named “HCOMUSB”.
- Follow the instructions displayed :

Installation example for Windows 2000, XP :

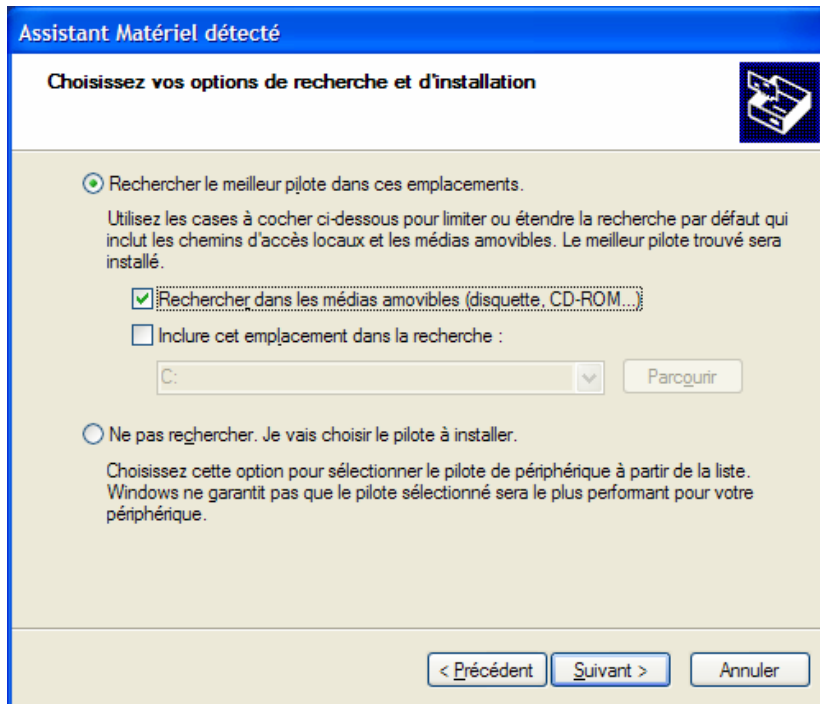


Insert CD for installation

Installation possibilities :

- **STANDARD AND AUTOMATICALLY INSTALLATION (RECOMMENDED)**
- Select to install from a specific location.

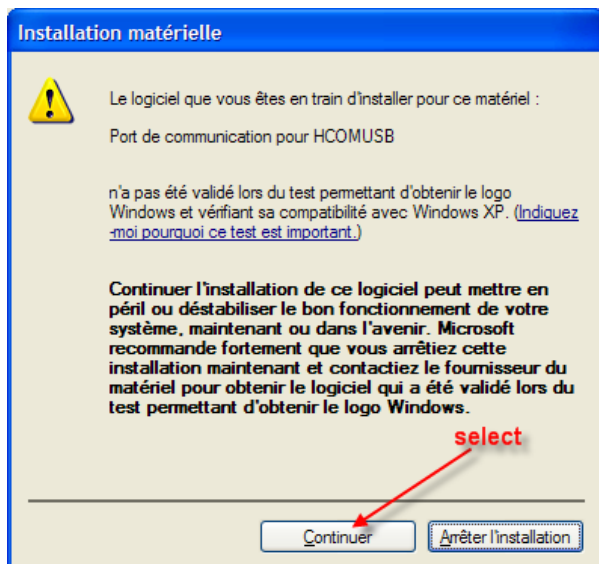
FUJI HART EXPLORER



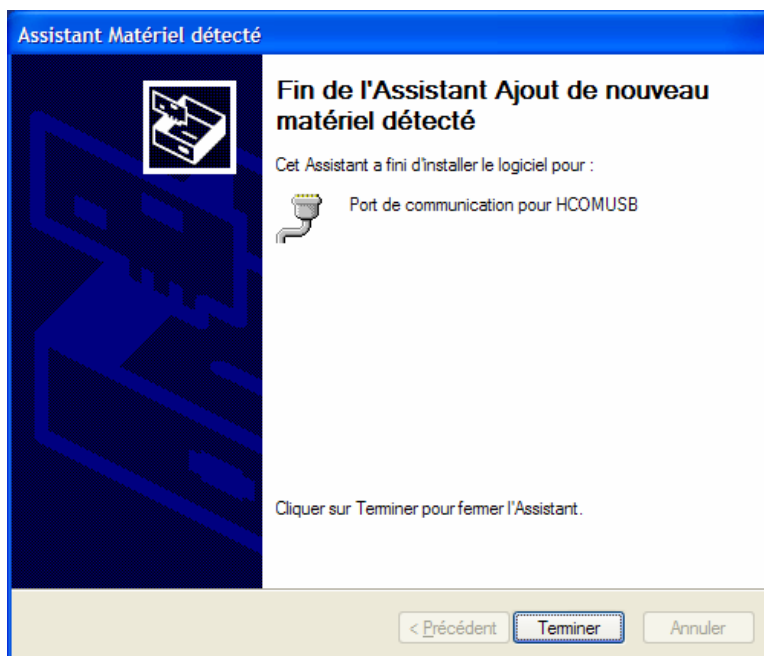
Select the path of the driver named 'AP3CDC.inf' for windows 2000, XP.



Let Windows go on.

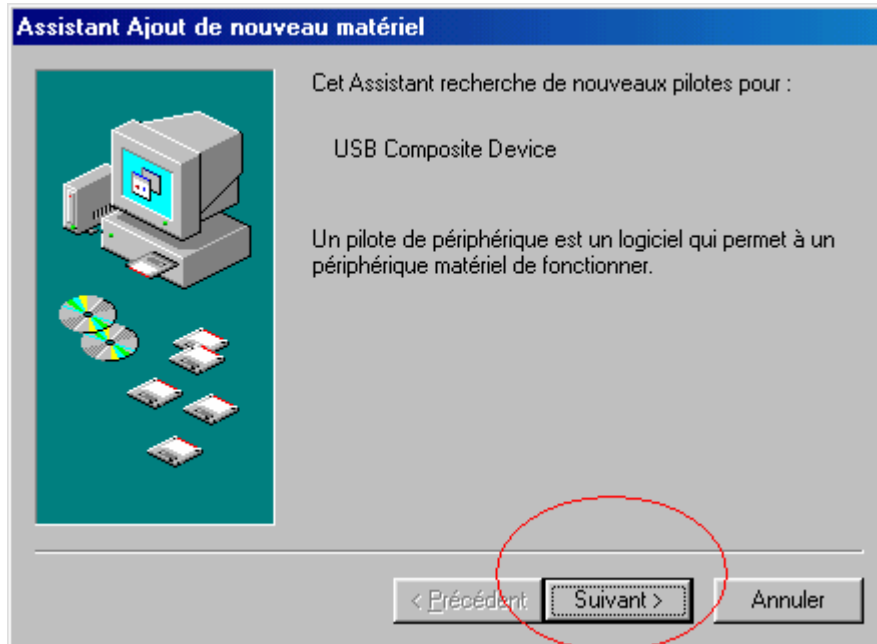


If there is a warning message concerning the software, please choose to continue.



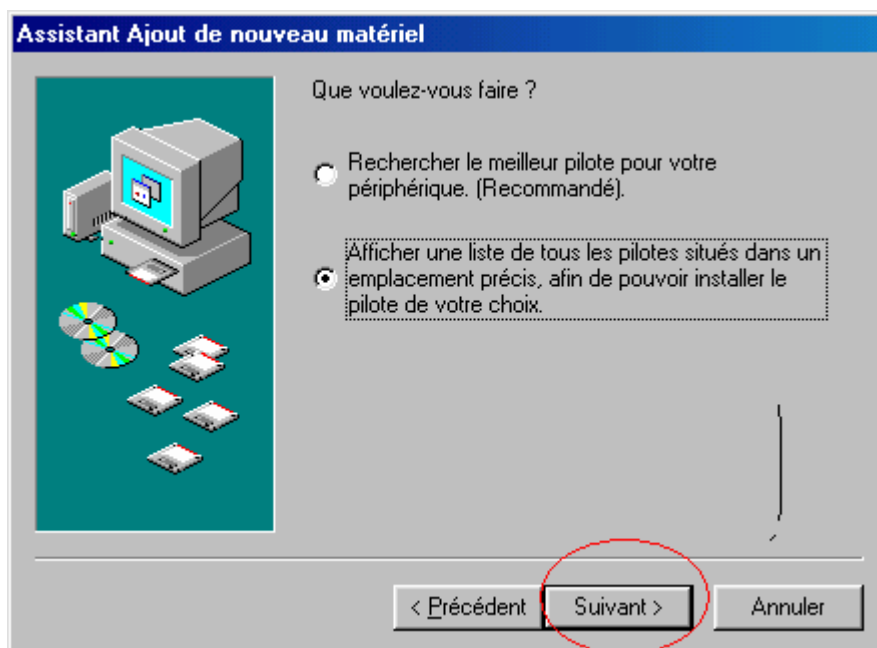
At the end of the installation, a new communication port is added to your system. You can see it using the configuration panel.

Installation example for Windows 98 :



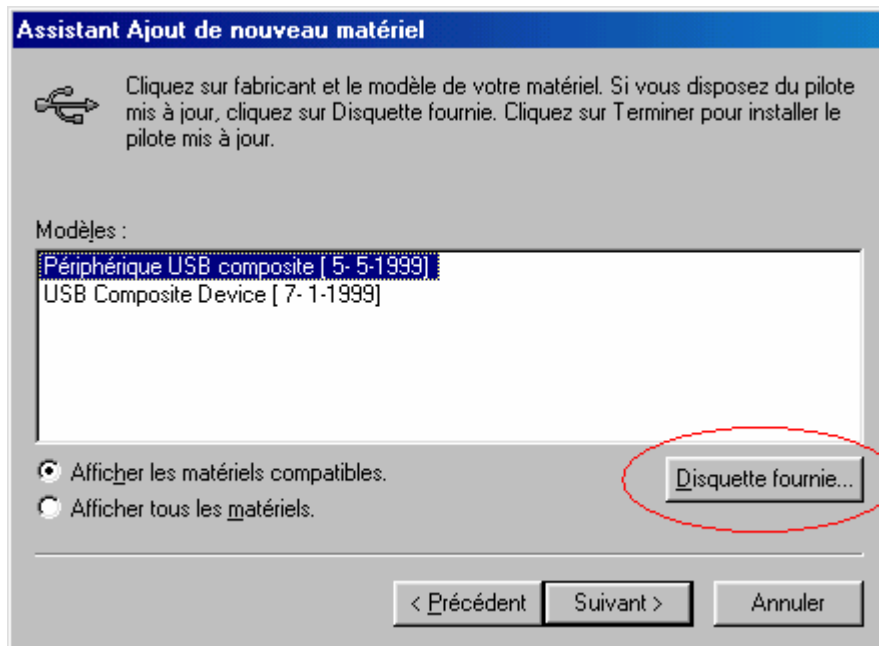
The new device is detected.

Please go on.



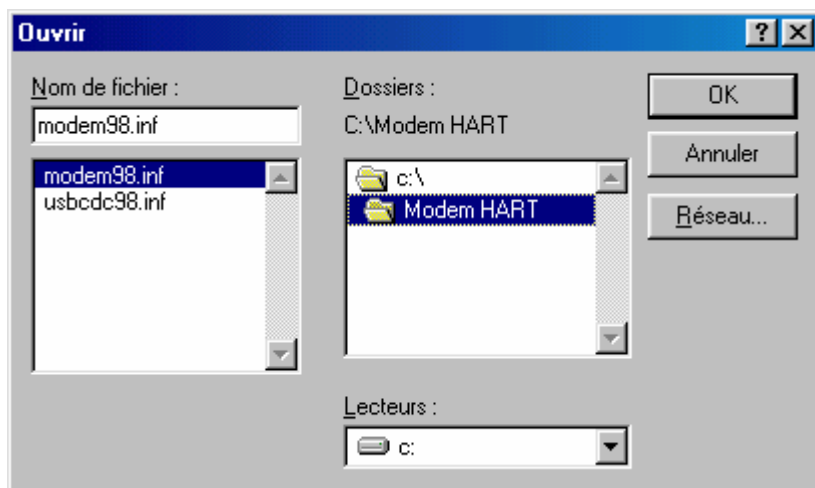
Select the second choice to select the path of the drivers.

Please go on.



Windows show you a list of available drivers.

Click on the “drive” button.

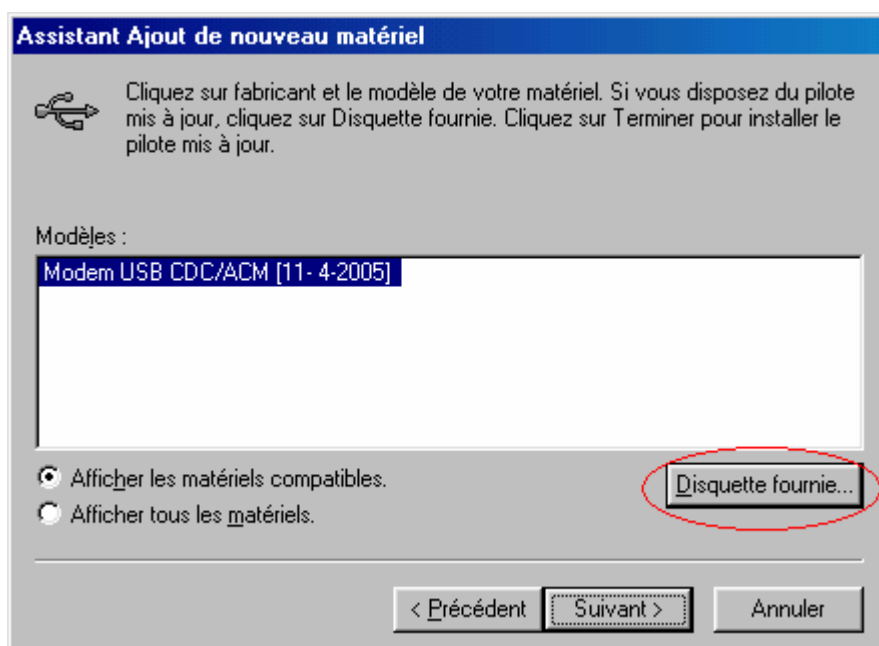


Browse your CD :

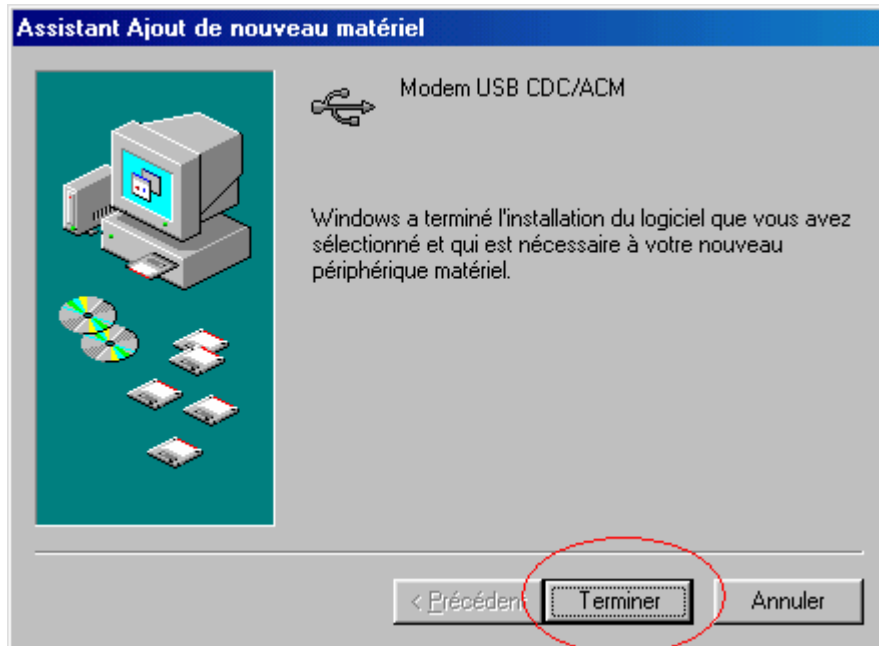
Example: D:\\Hart Modem A3\\Win 98.

You have to see following files :

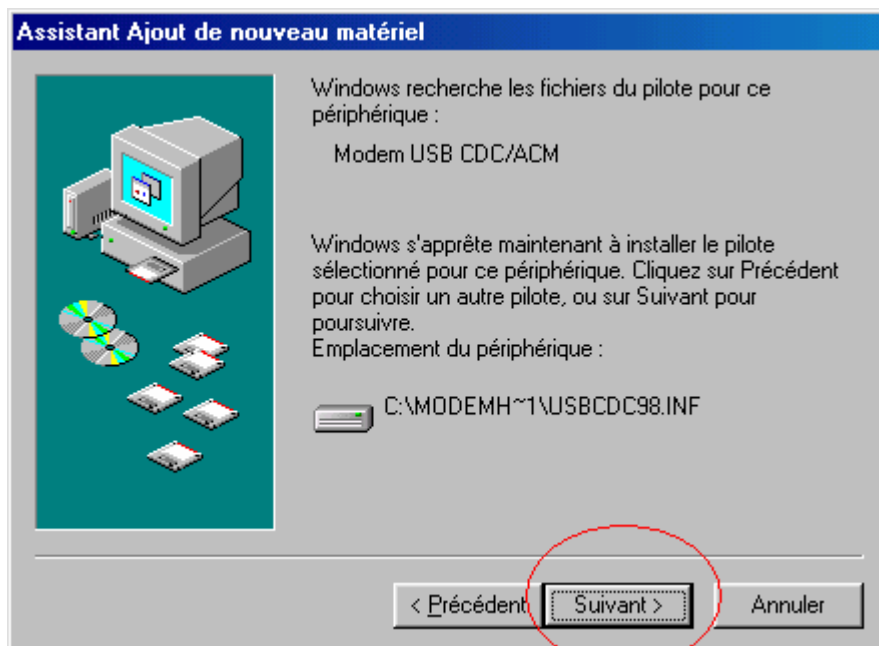
- Modem98.inf
- Usbcdc98.inf



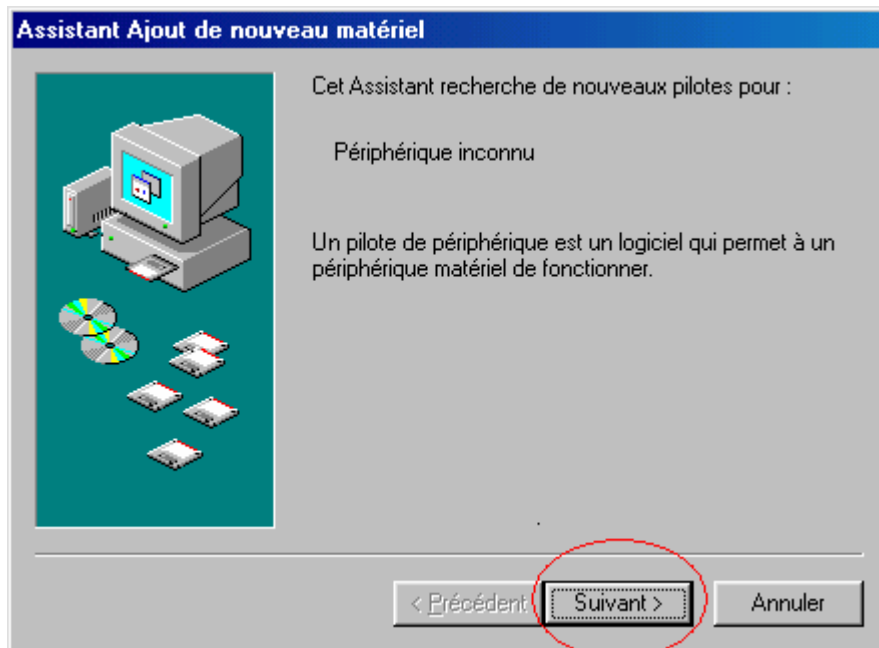
The USB modem will be installed.



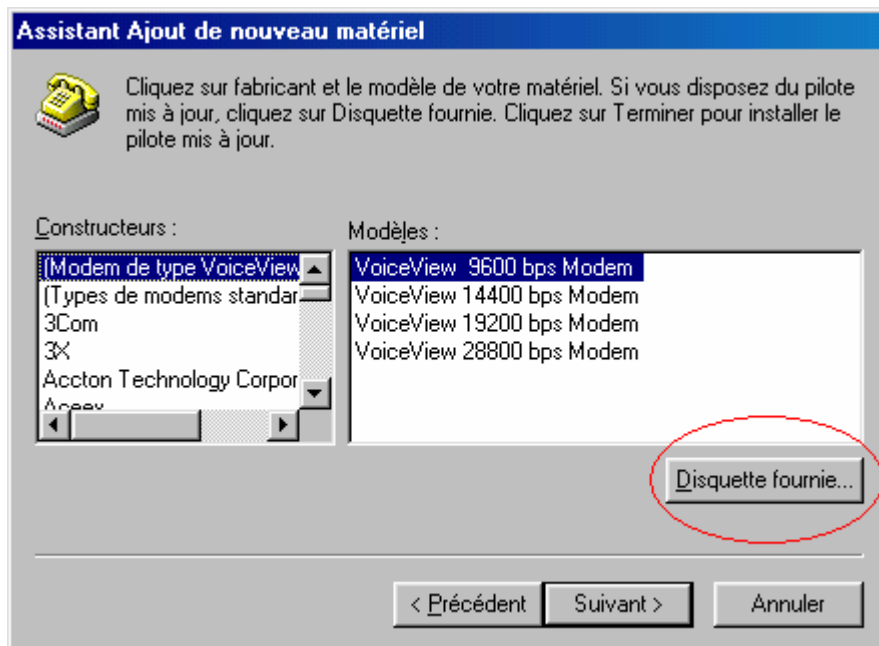
The modem is installed.



A new device is detected.

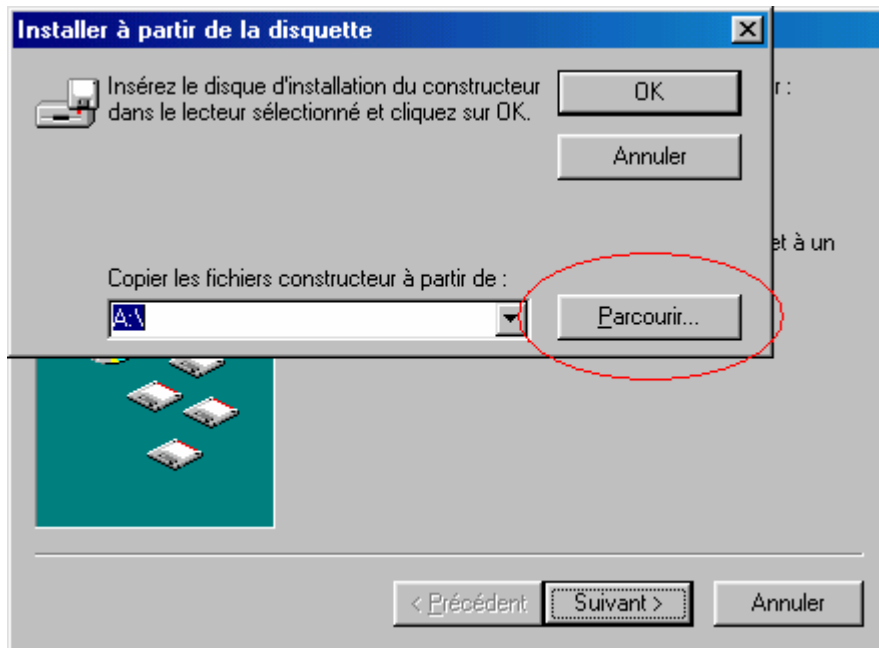


The communication port is detected.

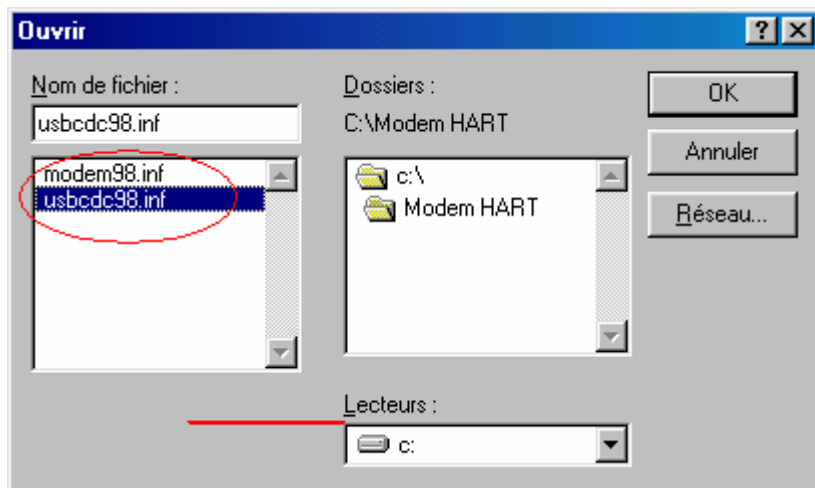


Windows show you different kinds of drivers.

Please click on the “drive” button.



Click on “browse” button.

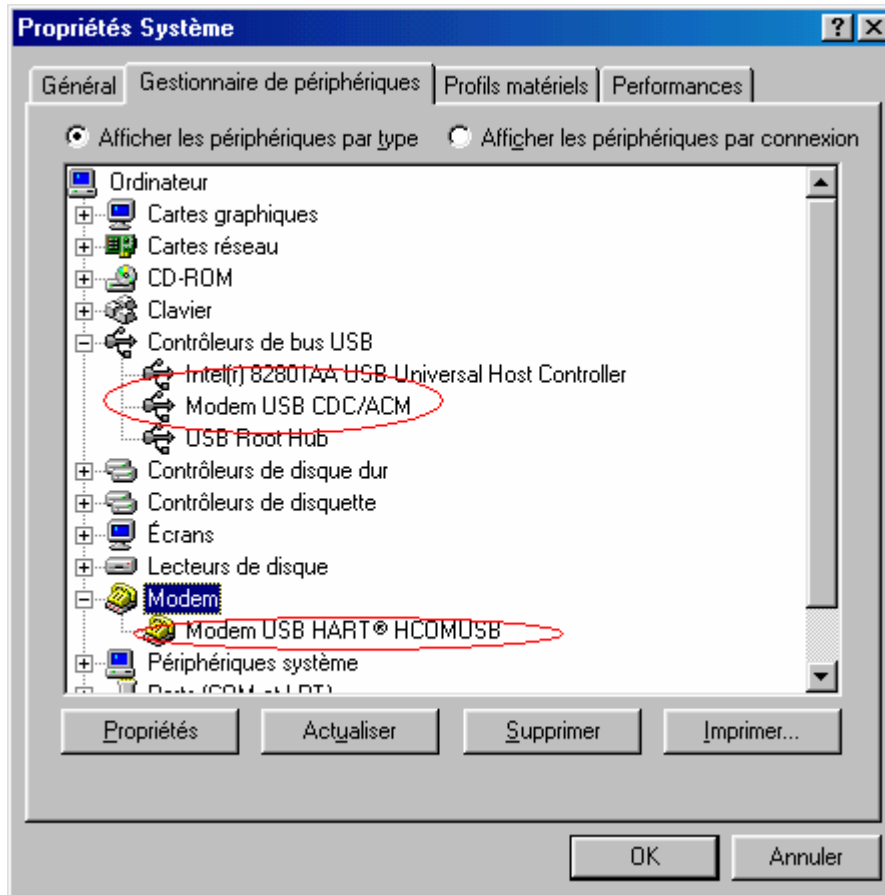


Browse to display the following files :

- Modem98.inf
- Usbcdc98.inf



The port is installed.



Using the panel configuration >> System icon >> System drivers you can verify that the modem is installed.

You have to see :

- Modem USB CDC
- Modem USB hart

Installing the application (FUJI HART EXPLORER)

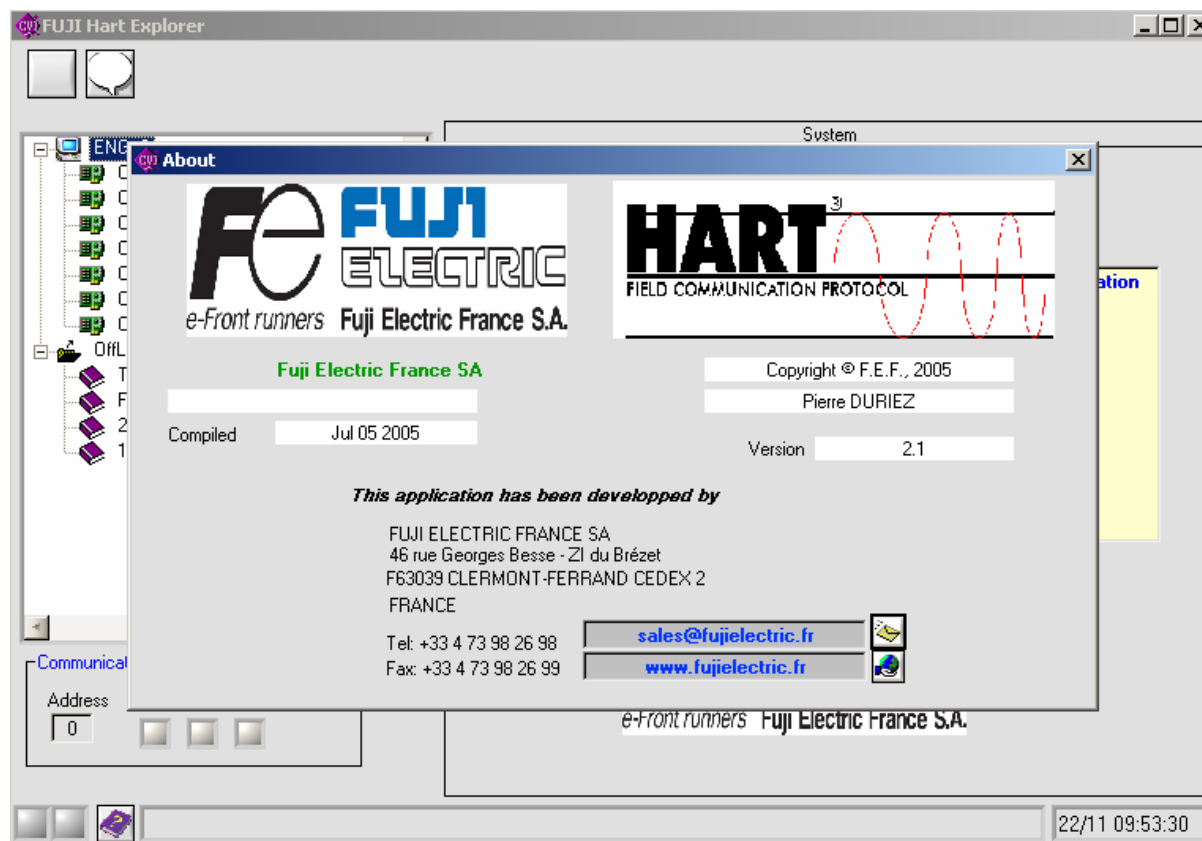
Double click on the file named “setup.exe” and follow the instructions.

Uninstalling the application




If you have already installed the application , you can uninstall it by launching “setup.exe” one more time or by using the classical uninstall procedure from the configuration panel.

Starting the application

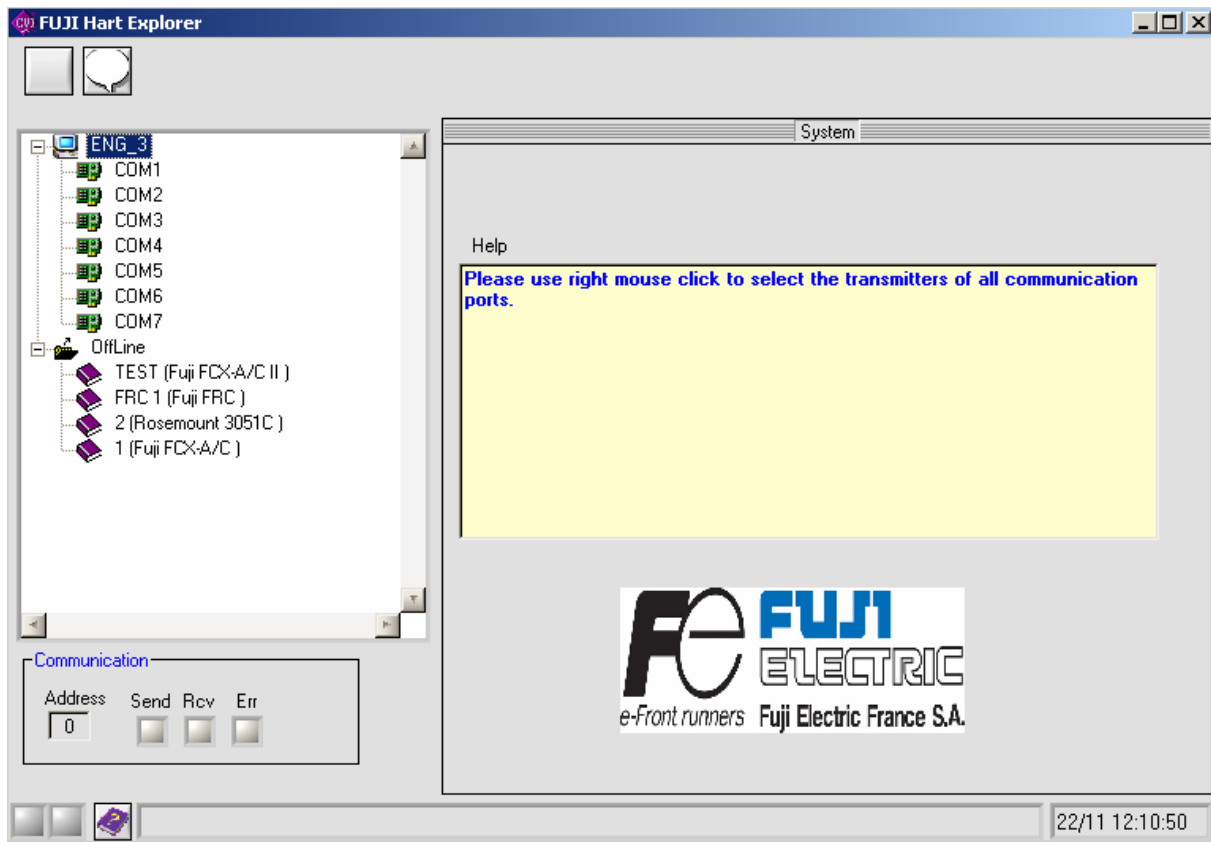
After started the application you've got the "About windows" :



What can you do ?

See the actual version number		Version 2.1
Contact Fuji Electric	click on the email button	
	Or double click one the address	sales@fujielectric.fr
See our web site	click on the web button	
	Or double click one the URL	www.fujielectric.fr
Close the windows		

Main windows



Description

The windows contains

- a toolbar
- a tree view
- a communication area
- a general information area

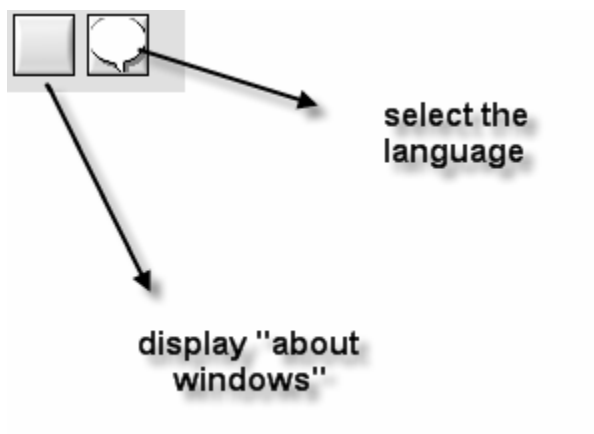
The toolbar



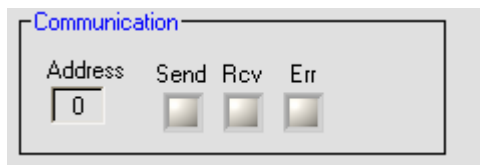
What can you do ?

The toolbar gives you the possibility to

- display the “About Windows”
- select the interface language



Communication area

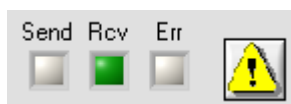


The communication area show you :

THE ADDRESS OF THE DEVICE FOR THE ACTUAL COMMUNICATION

- a send indicator
- a receive indicator
- an error indicator

- some time an error button



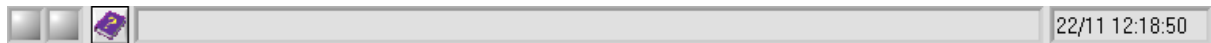
What can you do ?

You can get information about the communication.

Indicator		Meaning
Send	is flashing green	Data are sent to the device during the green state.
Rcv	Is flashing green	A device is sending data back
Rcv	Is flashing red	A response was expected but the device doesn't answer
Err	Is flashing red	A communication error occurs. THE COMMAND IS REJECTED BY THE DEVICE (VALUE/COMMAND REJECTED) AN ERROR IS DETECTED DURING THE COMMUNICATION

When an error occurs in a Hart command, the error button appears. You can click on it to get the Hart Error Code. See “Communication error” in the paragraph “Annexes”.

General information area

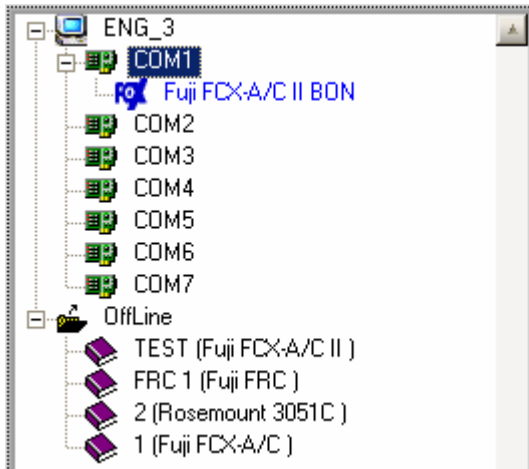


This area show you :

THE CURRENT DATE AND TIME

- a button to display help file
- an area for process and error messages

The tree view




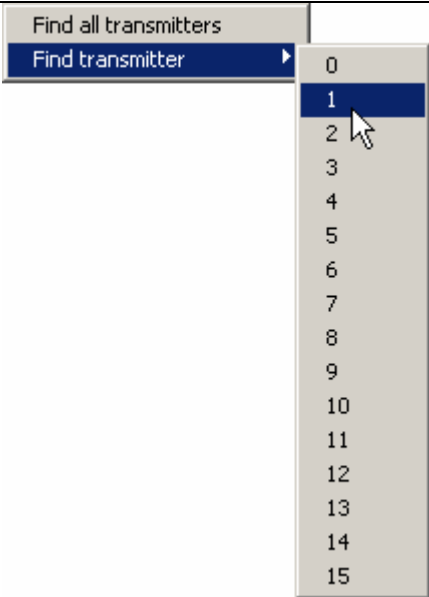
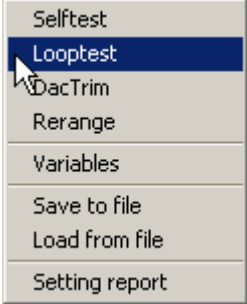
The tree view show you

- the computer name
- the available serial communication ports
- the connected devices
- the files saved for offline mode

Functionalities

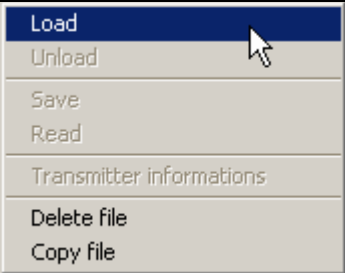
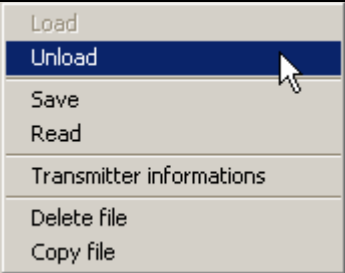
When you select an item of the tree view , the right panel of the window is refreshed and display information depending on the kind of the selected item (computer, communication port, device, file).

Right clicking on the item displays a contextual menu :

Item	Contextual menu (right click)	Functionality
Computer		Detect all devices for all addresses and all communication ports
Communication port		Find all transmitters for all addresses for that communication port. Find a transmitter for a specific address.
Device generic		SELFTEST LOOPTEST DAC TRIM RE RANGE MONITORING OF PROCESS SAVE PARAMETERS LOAD PARAMETERS MAKE A REPORT OF ALL PARAMETERS

FUJI HART EXPLORER

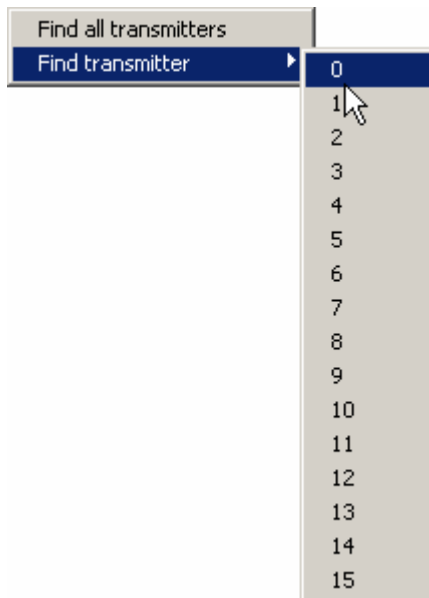
Other Device	See specific documentation	
--------------	----------------------------	--

Offline		
File		LOAD FILE AS DEVICE
<u>File not loaded</u>		DELETE FILE COPY THE FILE
File		UNLOAD FILE SAVE ALL PARAMETERS REFRESH ALL PARAMETERS FROM FILE MAKE A REPORT DELETE FILE COPY THE FILE
File loaded		

Loading a device (online mode)

Right click on the port and select “Find all transmitters” if you don’t know its address or select “Find transmitter” with the good address.

Finding a transmitter with address 0



You will see the communication indicators flashing. If “Recv” indicator turns in green a device is detected and is sending frame.




Please mind :

- For the point to point communication the address (poll address) is always “0”.
- **FOR COMMUNICATION IN MULTIDROP MODE THE ADDRESSES FROM 1 TO 15 HAVE TO BE PROGRAMMED.**

IF A DEVICE IS DETECTED A NEW ITEM IS CREATED UNDER THE COMMUNICATION PORT ITEM.

Example of generic device :



Example of FCX device :



The item is defined with

A ICON



- the manufacturer name
- the device name
- the tag

?

Fuji

FCX-A/C II

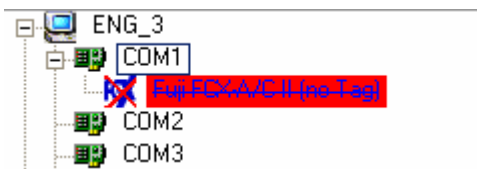
BON

If the device is not especially implemented in the software, it can be manage in generic mode. The icon is . Otherwise, if the device is fully implemented, like "FUJI FCX pressure transmitter", the icon is .

Device in error :

If a device is detected and a diagnostic problem occurs during the detection, the textual information is barred.

You will see



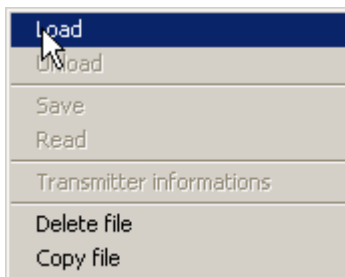
Loading a device in offline mode

Introduction

Offline mode allows you to work on a file that contains all the parameters of a device of any kind. Those files are created by using a connected device and saving all its parameters. You can modify the parameters inside that file directly, like if the device were connected. After, you can download your file to a device of the same kind.

To load a device

You have to select a file under the root named “Offline”, right click and select “Load” option.



The file is loaded exactly like if the device was really connected. You can modify settings values and save them. The main differences are :

THE CONTEXTUAL MENU IS SPECIFIC TO THE OFFLINE MODE, NOT TO THE DEVICE KIND. SO, YOU CAN'T DO SELF TEST, LOOP TEST ...

THE INPUT OUTPUT FUNCTIONS ARE DIRECTED TO AND FROM THE FILE INSTEAD OF THE DEVICE. USUALLY, PARAMETER VALUES ARE CHECKED (AND MAY BE REJECTED) BY THE DEVICE. IN OFFLINE MODE, INCORRECT VALUES OR COMBINATIONS CAN'T BE DETECT. YOU WILL GET AN ERROR ONLY WHEN YOU WILL DOWNLOAD THE FILE TO A DEVICE.

Working on a device

In online and offline, you can work on a device by selecting it and open a contextual menu with a right click.

Working in generic mode

Introduction

The “Fuji Hart Explorer” is able to manage any kind of Hart devices. If a device is fully implemented, the software give you access to device specific functions. Otherwise, you can work in generic mode. It does mean that you can only use Hart generic functions. In the future, Fuji can develop plug in for implementing new device.

Parameters panels

The parameters are group by panel. You can select a group by clicking on the associated button. In generic mode, there are 4 parameters panels.



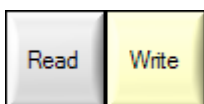
HART GENERAL INFORMATIONS PANEL

TRANSMITTER / DEVICE INFORMATIONS PANEL

MEASUREMENT CELL INFORMATIONS PANEL

PROCESS INFORMATIONS PANEL

The panels are refreshed only if necessary, and commands are sent to the device to take back needed data. Only readable data are dimmed. When you change a writable parameter, the “Write” button become available. At any time, if you need to read back data, click on read button.



HART general information panel

The screenshot shows the 'HART general information panel' with the following data:

HART informations	
Manufacturer Id.	15 Fuji
Device type code	1 FCX-A/C
Device id.	B6927
N° of preambles	5
Sensor Serial No.	226705

Revisions	
Universal command rev.	5
Transmitter specific rev.	1
Software rev.	2
Hardware rev.	8
Device function flags	0

Hart general information	
Manufacturer Id	Official code of the manufacturer in hexadecimal. The next field is the name associated .
Device type code	Official code associated with the device. (in hexadecimal). The next field is its name.
<u>Polling address</u>	Address of the device. (selectable, see page 19)
Device id.	Device Code identification.
N° of preambles	Number of preambles used by the device
Sensor Serial No.	Serial Number of the sensor
Revisions	
Universal command rev.	
Transmitter command rev.	
Software command rev.	
Hardware command rev.	
Device function flags	

Warning : if you change the “polling address” parameter, it’s recommended to restart the application.

Transmitter information panel

The screenshot shows the 'Transmitter information panel' in the Fuji Hart Explorer software. The panel has four tabs: 'HART', 'Transmitter', 'Meas. Cell', and 'Process'. The 'Transmitter' tab is selected, and the title bar indicates 'Transmitter informations : Generic mode'. The main area contains a form with the following fields and controls:

- Tag:** A text box containing 'TEST'.
- Descriptor:** An empty text box.
- Date:** A text box containing '00/00/00'.
- Message:** An empty text box.
- Final Assembly number:** A text box containing 'x B6927'.
- Sensor S/N:** A text box containing '0'.
- Private Label:** A text box containing 'x 15'.
- Write Protect:** A toggle switch currently set to 'Off' (blue) with 'Oui' (Yes) as the alternative option.

At the bottom of the panel are two buttons: 'Read' (grey) and 'Write' (yellow).

Transmitter information	
<u>Tag</u>	Tag number of the measuring device
<u>Descriptor</u>	Description of the measuring point
<u>Date</u>	Date
<u>Message</u>	Possible message can be written in 32 digits
Final Assembly number	
Sensor S/N	
Private Label	
Write Protect	Enables or inhibits the write function in the different panels

Measurement cell information panel

HART	Transmitter	Meas. Cell	Process
------	-------------	------------	---------

Measuring cell informations : generic mode

Cell informations

Upper Sensor Limit

Lower Sensor Limit

Minimum span

Unit Code

Measurement cell information	
Upper sensor limit	Maximum setting limit
Lower sensor limit	Minimum setting limit
Minimum span	Minimum span
Unit code	Unit (can not be changed)

Please mind :

Upper/lower sensor limit corresponds to the interval between upper and lower sensor limits for the possible setting of the span of the measuring device. This interval does not correspond to the max. range of the device.

Process information panel

Process

Process Value	0.05	kPa
Analog value	15.332	mA
Percent Range	70.83	%

PV (%)

Réglages

Unit Selected	kPa
Upper Range Value	16.000 kPa
Lower Range Value	-16.000 kPa
Damping	0.12 Sec
Transfer Function	Square root output

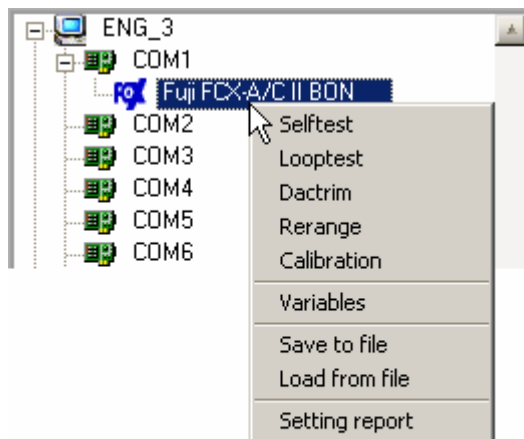
Live Edit

Process information	
Process value	Process value indicated in the programmed unit
Analog value	Analog output signal
Percent range	Output in % - also indicated on the bar graph
<u>Unit</u>	Programmable unit for the software
<u>URV</u>	Upper range value (20mA)
<u>LRV</u>	Low range value (4 mA)
<u>Damping</u>	Damping of the output signal
<u>Transfer function</u>	Not supported by the Hart protocol in generic mode

Device functions

Introduction

You can access the device functions in online mode by right clicking on the device item in the tree view.



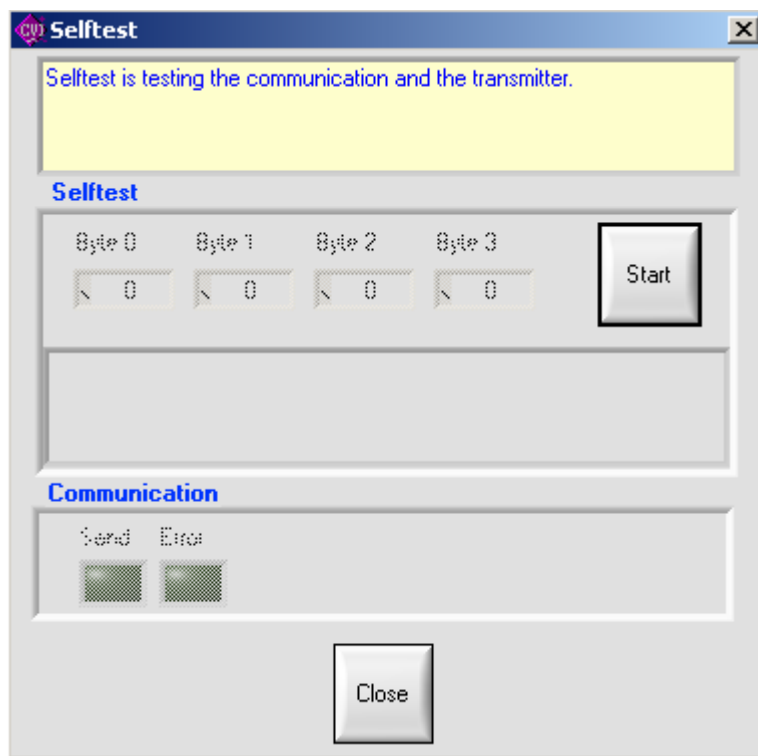
Self test function

Introduction

Initiates the Self-test function in the device. The device responds immediately to the command and then performs the Self Test. Refer to the device specific Hart documentation for specific implementation details.

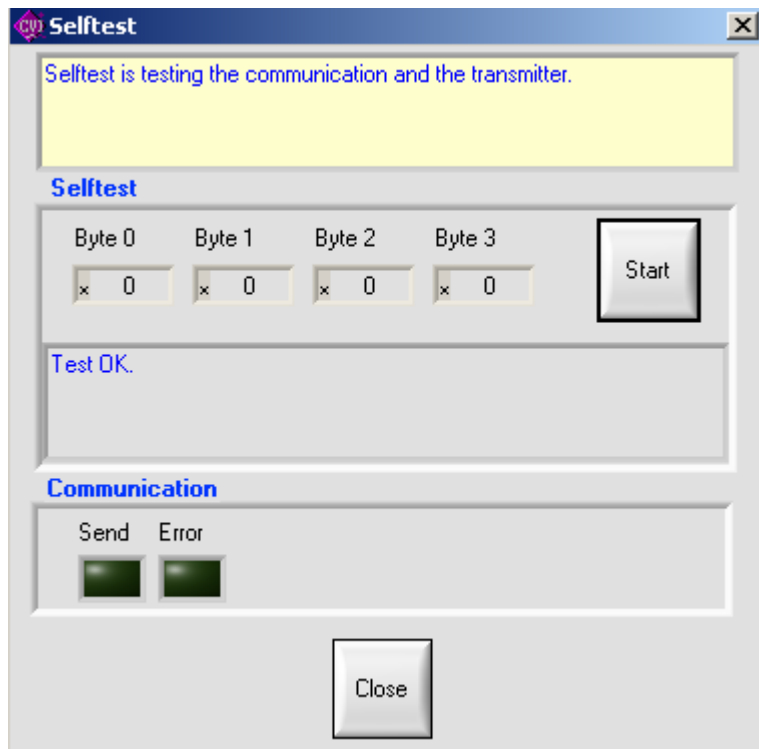
Procedure

This panel is very simple. Just click on start button to proceed the test.



FUJI HART EXPLORER

After the test, you can read the 4 status bytes. Please refer to the Hart documentation of the device to get the meaning of those status bytes.



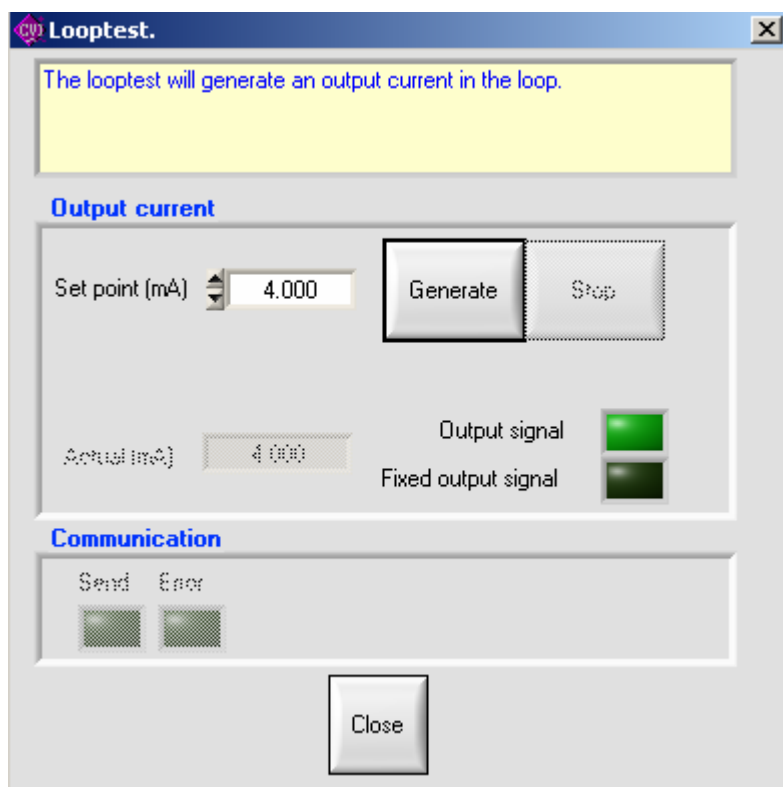
Loop test function

Introduction

This test will fix the analog current at specified value.

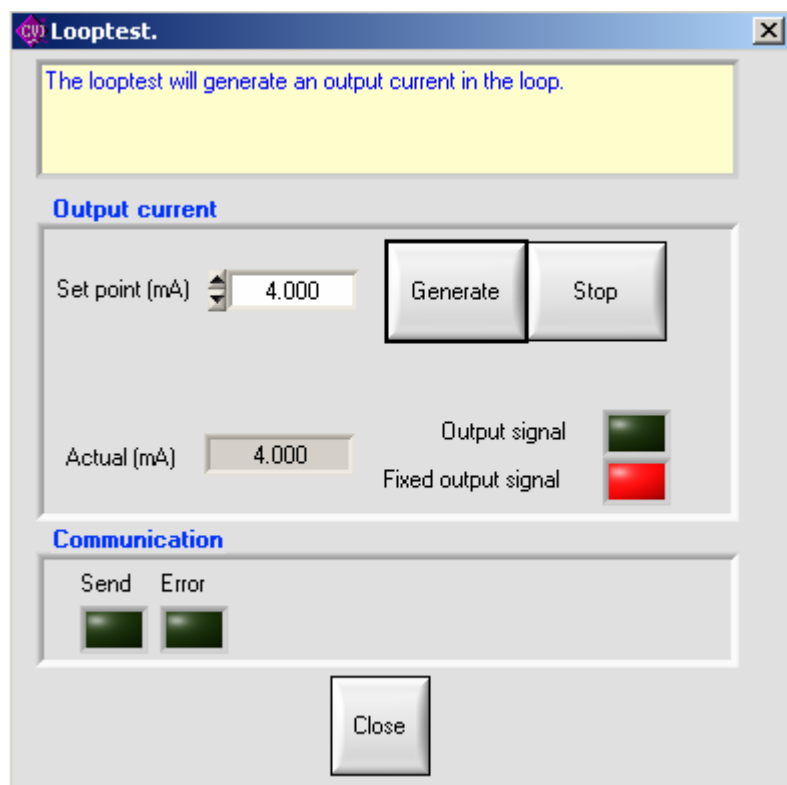
Procedure

Type in the set point value, and click on generate button :



FUJI HART EXPLORER

The device is in fixed output signal and the actual value is displayed. Click on stop button or close button to go back in output signal.



Dactrim function

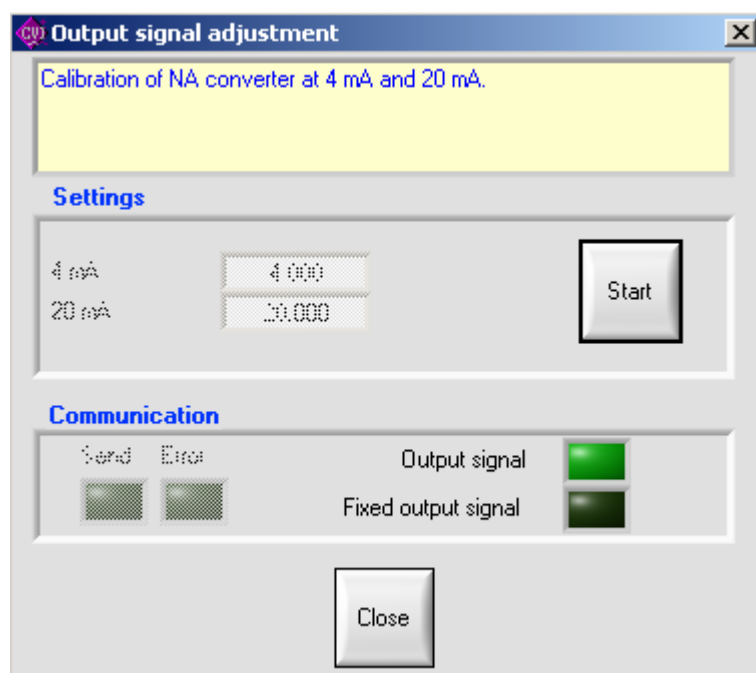
Introduction

This function will adjust the output signal. It will

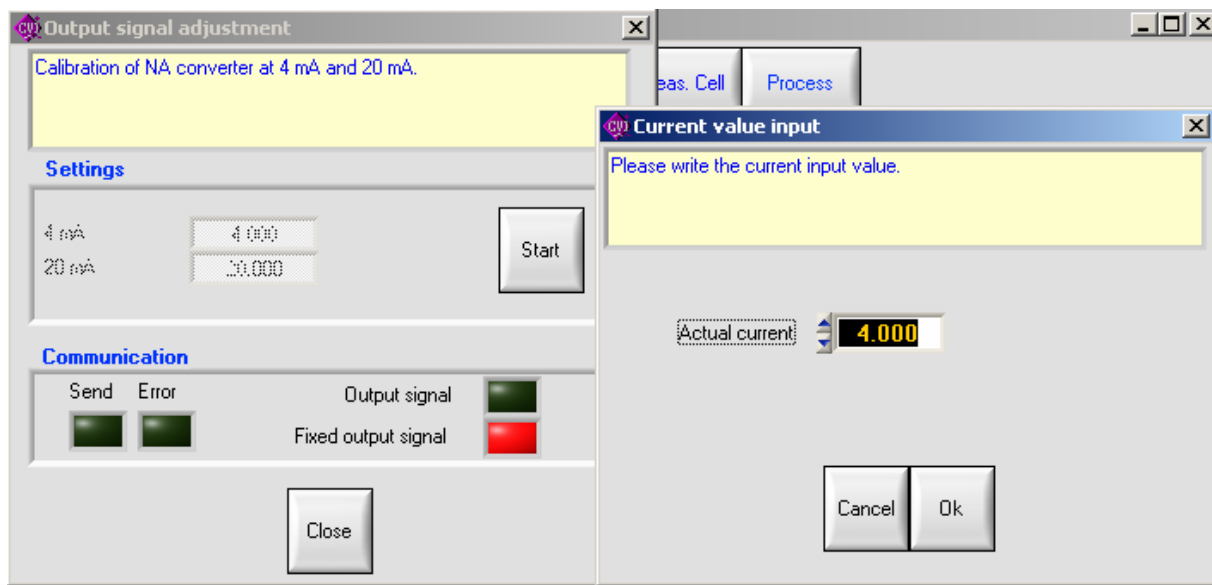
TRIM THE ZERO OR 4 MILLIAMP POINT OF THE DIGITAL TO ANALOG CONVERTER SO THAT THE CONNECTED CURRENT METER READS 4 MILLIAMP.

TRIM THE GAIN OR 20 MILLIAMP POINT OF THE DIGITAL TO ANALOG CONVERTER SO THAT THE CONNECTED CURRENT METER READS 20 MILLIAMP.

Procedure



When clicking on START button, the following window is displayed.



Enter the output signal displayed on the milliamp – meter connected to the transmitter in the “actual current” space.

- first for the LRV
- next for the URV

Calibrate the output signal only with a high accurate milliamp – meter (3 digits after the point)
Close the window on “Close” button.

Re range function

Introduction

This function is mainly used for an easy adjustment of the zero elevation or suppression for example on a liquid level measurement.

The reference pressure needs to be applied on the transmitter for zero and adjusted span to use this function. (for example : wet leg has to be filled for a level measurement)

When the zero elevation/suppression (on Rerange LRV button) is adjusted, the calibrated span will also be elevated or suppressed of the same value than the zero.

Procedure

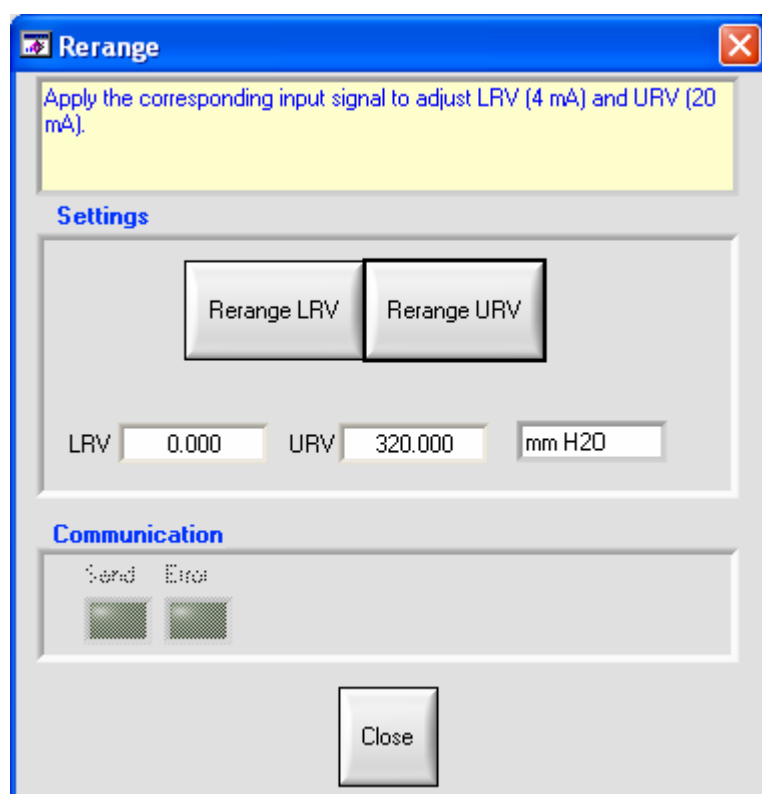
Mount the transmitter in the application condition.

Click on Rerange LRV for the 4 mA output adjustment (reference pressure is required)

Click on Rerange URV for the 20 mA output adjustment (reference pressure is required)

Close the window after adjustment.

Example : Transmitter before Re ranging of LRV for zero suppression or elevation :



Example : Zero elevation is done by clicking on LRV button :

Rerange

Apply the corresponding input signal to adjust LRV (4 mA) and URV (20 mA).

Settings

Rerange LRV Rerange URV

LRV -129.854 URV 190.146 mm H2O

Communication

Send Error

Close

Please mind LRV and URV values showing the zero elevation without changing the transmitter span

Process values monitoring function

Introduction

This panel allows you to monitor the process values. The maximum duration depends on your free disk space.

You can set the following parameters :

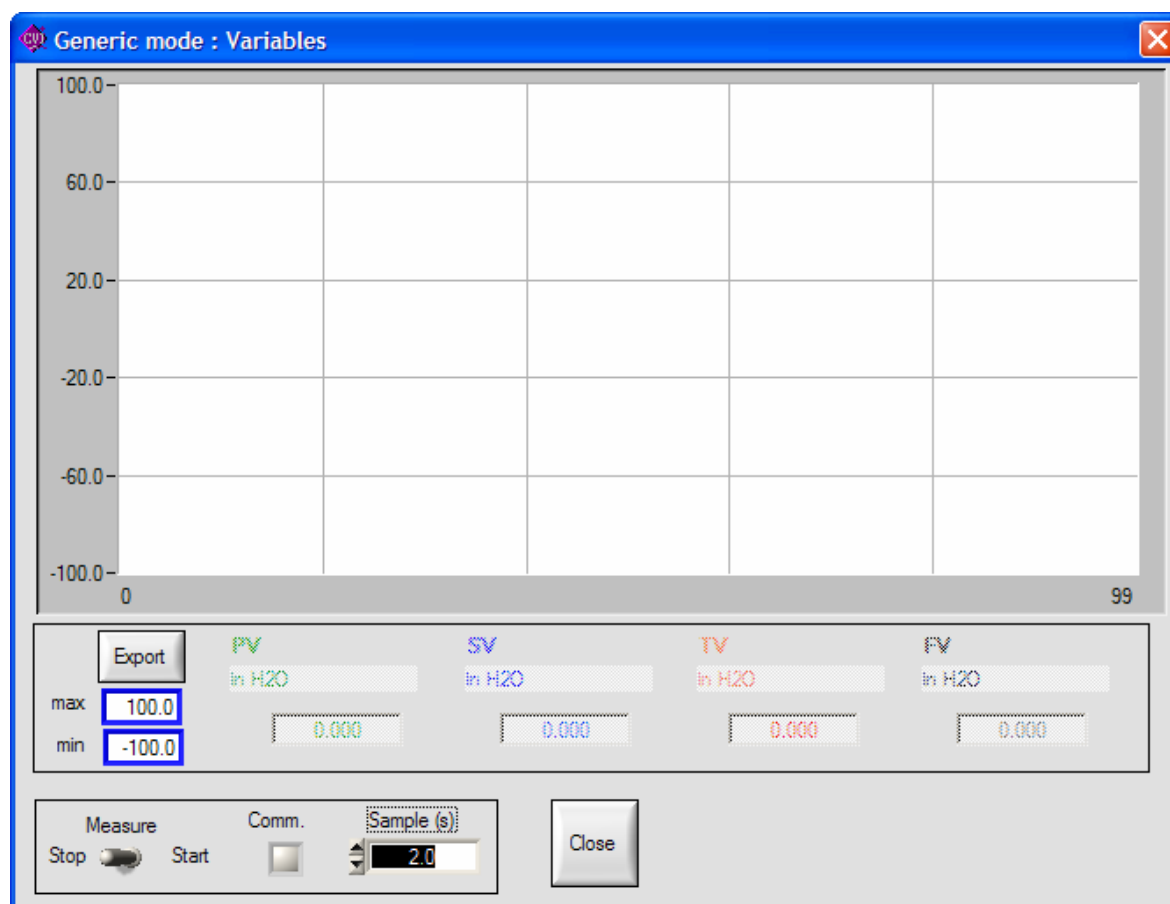
SAMPLE (IN SECOND)

MINIMUM AND MAXIMUM AXIS VALUES OF THE GRAPH

After the monitoring, you can export data to a CSV (Comma Separated Value) file compatible with Excel.

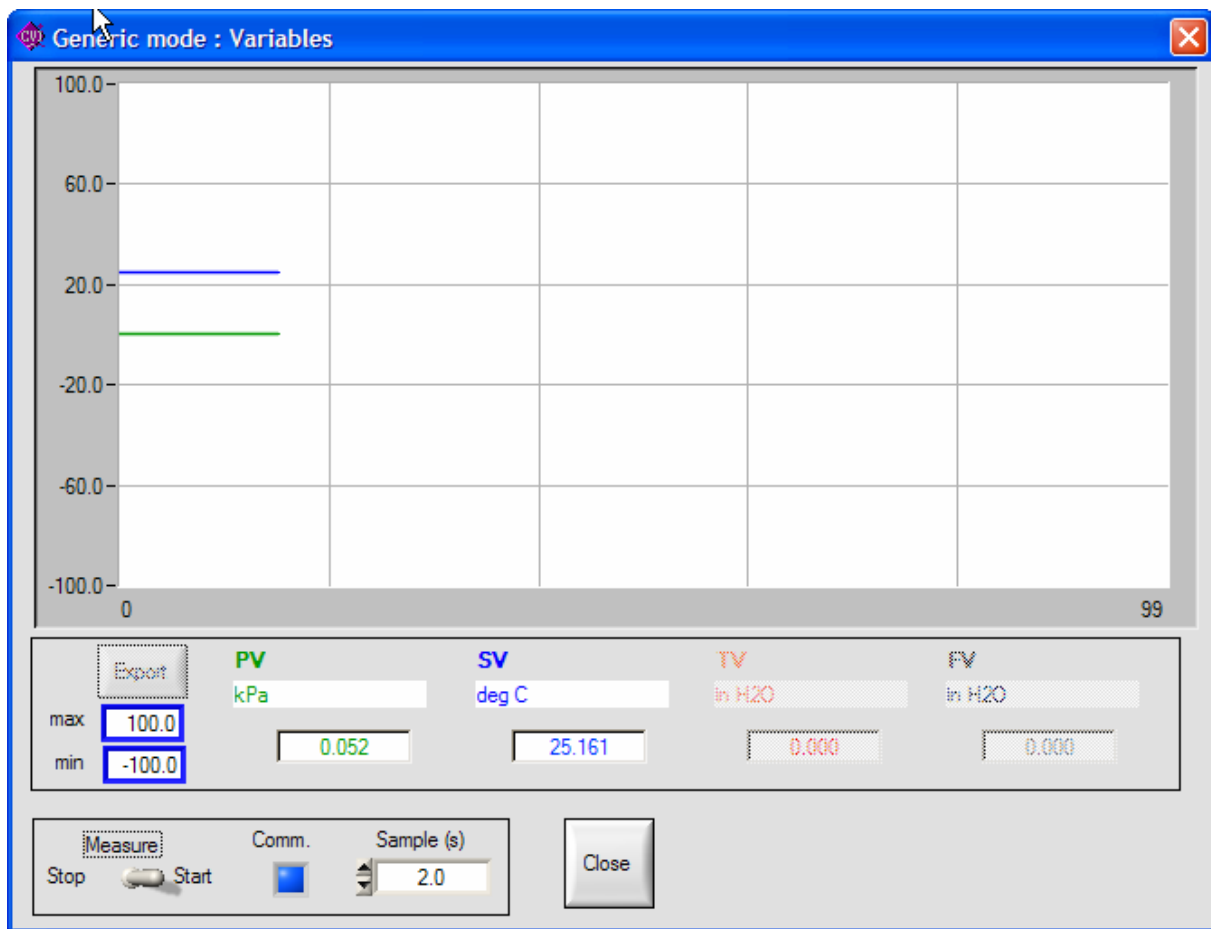
Procedure

Set the parameters and click on start button.

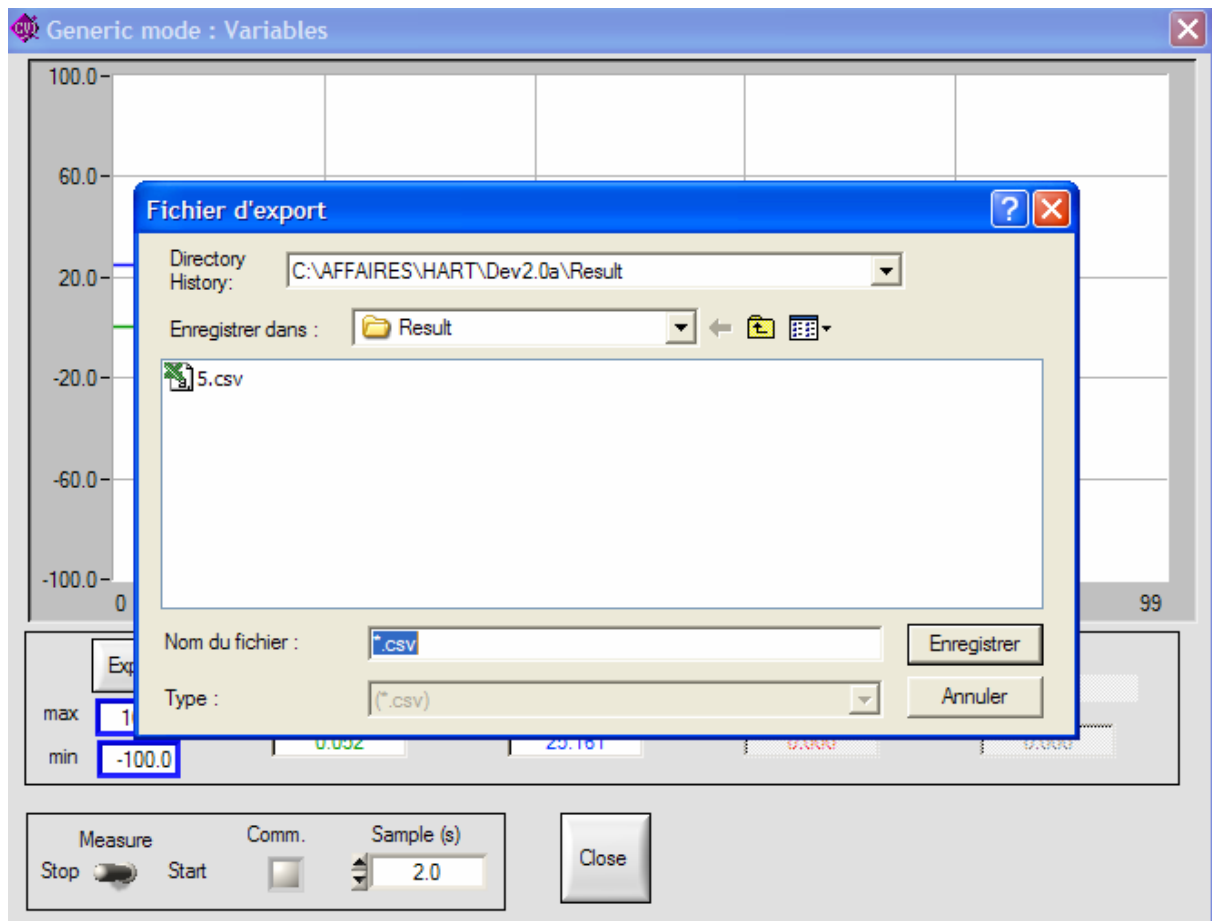


FUJI HART EXPLORER

Example of monitoring every 2 seconds.



Click on stop button, stops the monitoring. Export button is available. If you click on it, you will be asked to name the file.



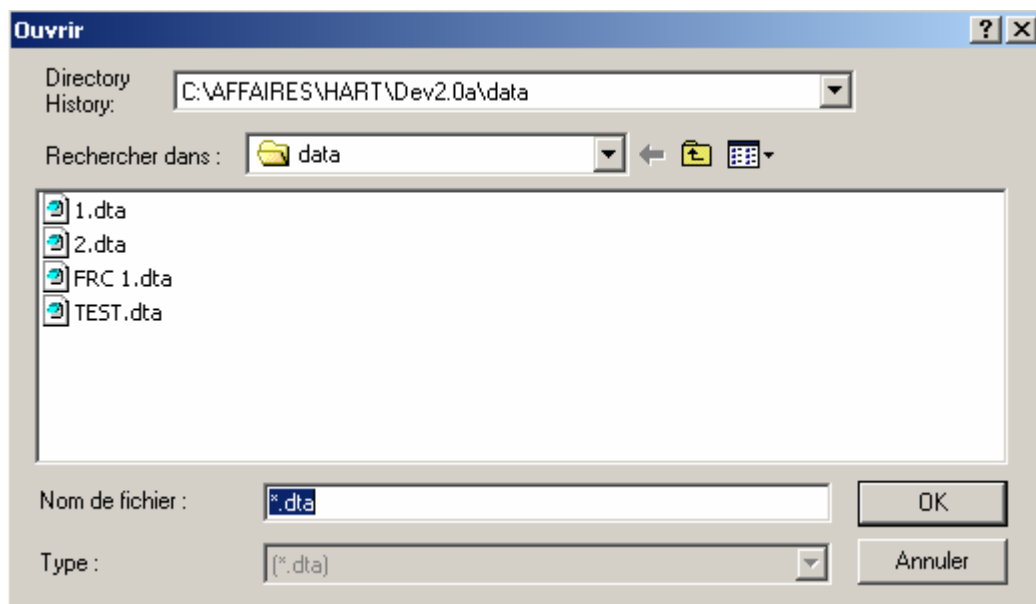
Saving parameters function

Introduction

This function allows you to save all the parameters displayed in the panels into a file. After that operation, you can download the file in the device or work on it using the offline mode.

Procedure

Select the menu and choose a name file.



The saved parameter file will be displayed in the tree view under “off line”.

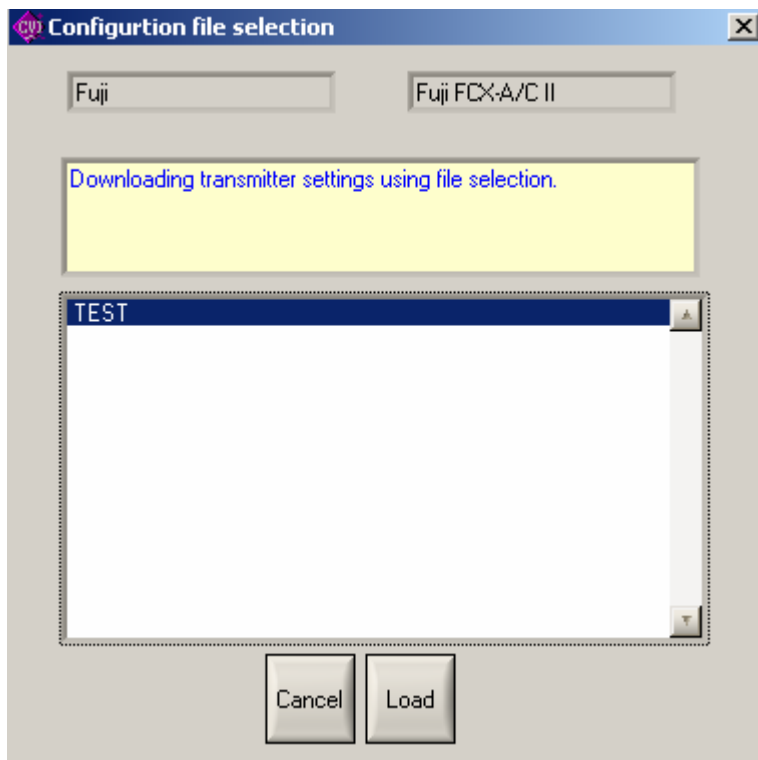
Loading parameters function

Introduction

This function allows you to write all parameters already saved into an existing device. Only the parameters of saved transmitter configurations are displayed in the panels.

Procedure

Select the function and choose the file corresponding to the kind of your device.



Load an transmitter configuration by clicking on the Load button.

Warning: it's impossible to load a parameter file if you don't use the same language.

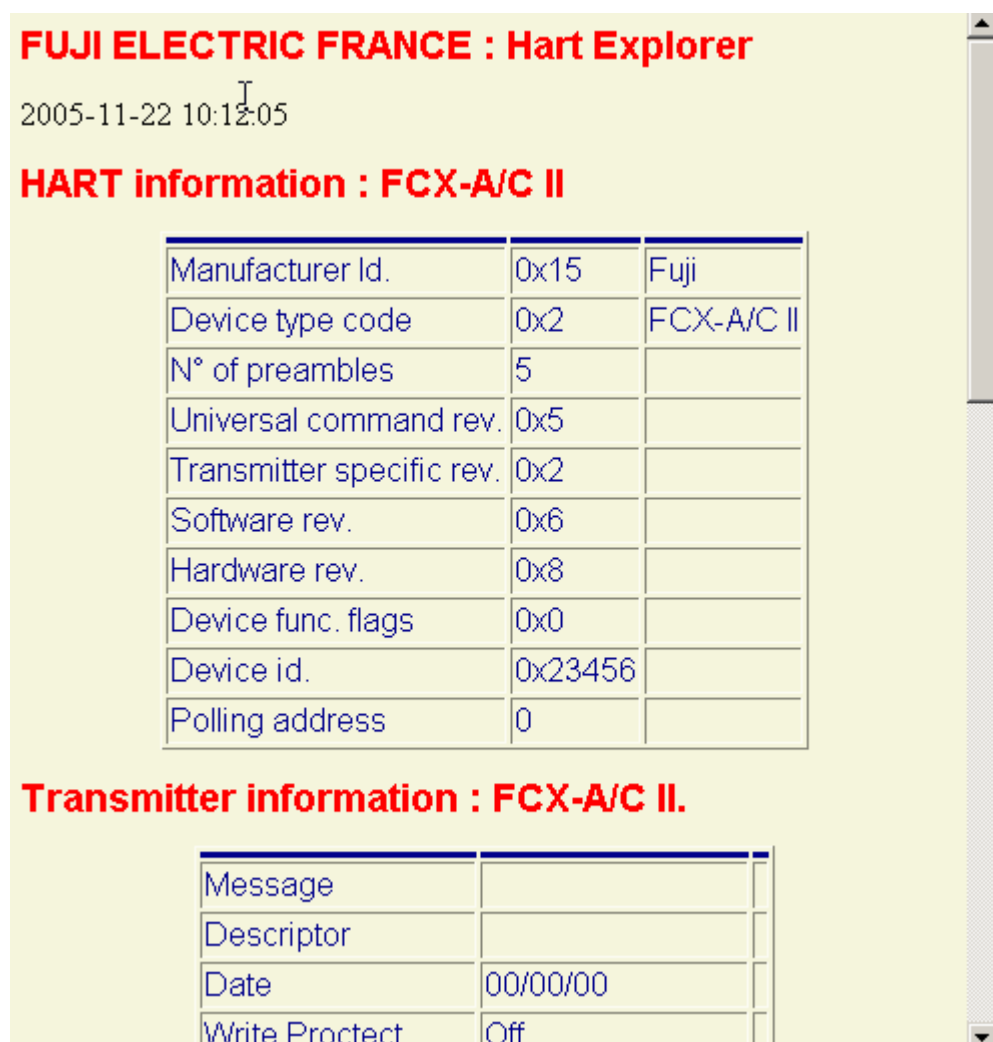
Parameters reporting function

Introduction

The report function is useful for taking a picture of your parameters. This function displays the parameters of all the panels into your browser. So you can print it, saved it using your browser.

Procedure

After selection in the menu, a new window is opened in your browser. You can see a title and a 3 column tab of parameters for each panel. The tab show you the parameter description, value and value meaning.



The screenshot displays the Fuji Hart Explorer web interface. At the top, the title "FUJI ELECTRIC FRANCE : Hart Explorer" is shown in red. Below it, the date and time "2005-11-22 10:12:05" are displayed. The main section is titled "HART information : FCX-A/C II" in red. It contains a table with 11 rows and 3 columns. The first column lists parameter names, the second column lists values, and the third column lists meanings. Below this, another section titled "Transmitter information : FCX-A/C II." in red contains a smaller table with 4 rows and 3 columns, listing transmitter parameters and their values.

FUJI ELECTRIC FRANCE : Hart Explorer		
2005-11-22 10:12:05		
HART information : FCX-A/C II		
Manufacturer Id.	0x15	Fuji
Device type code	0x2	FCX-A/C II
N° of preambles	5	
Universal command rev.	0x5	
Transmitter specific rev.	0x2	
Software rev.	0x6	
Hardware rev.	0x8	
Device func. flags	0x0	
Device id.	0x23456	
Polling address	0	
Transmitter information : FCX-A/C II.		
Message		
Descriptor		
Date	00/00/00	
Write Proctect	Off	

Working with a “Fuji FCX A-C II pressure transmitter”

Please mind : If the transmitters has the local LCD indicator option, please check that the switch “LOCAL/COMM” is in COMM position.



LOCAL/COMM switch

Introduction

The “Fuji Hart Explorer” includes a plug in for totally implementing the device “Fuji FCX A-C II Pressure Transmitter”.

Parameters panels

The parameters are grouped by panel. You can select a group by clicking on the associated button. There are 5 parameters panels.



HART GENERAL INFORMATION PANEL

TRANSMITTER / DEVICE INFORMATION PANEL

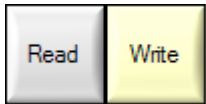
MEASUREMENT CELL INFORMATION PANEL

PROCESS INFORMATION PANEL

LDC INDICATOR PANEL

The panels are refreshed only if necessary, and commands are sent to the device to take back needed data. Fields associated with only readable data are dimmed. When you change a writable parameter, the “Write” button becomes available to really write the data. At any time, if you need to read back data, click on read button.

FUJI HART EXPLORER



HART general information panel

HART information : FCX-A/C II

HART informations

Manufacturer Id.

Device type code

Device id. N° of preambles Polling address

Revisions

Universal command rev. Transmitter specific rev.

Software rev. Hardware rev.

Device func. flags

Hart general informations	
Manufacturer Id	Official code of the manufacturer in hexadecimal. The next field is the name associated.
Device type code	Official code associated with the device. (in hexadecimal). The next field is its name.
<u>Polling address</u>	Address of the device. (selectable, see page 19)
Device id.	Device Code identification.
N° of preambles	Number of preambles used by the device
Revisions	
Universal command rev.	
Transmitter command rev.	
Software command rev.	
Hardware command rev.	
Device function flags	

Warning: if you change the “polling address” parameter, it’s recommended to restart the application.

Transmitter information panel

The screenshot shows the 'Transmitter information' panel. It includes a menu bar with 'HART', 'Transmitter', 'Meas.Cell', 'Process', and 'LCD ind.'. The main window has a title bar 'Transmitter information : FCX-A/C II.'. Inside, there are several input fields: 'Tag' with value '00', 'Model' with value 'FKCT33V4AAAYYAAA', 'Descriptor', 'Date' with value '00/00/00', 'Message', 'Final Assembly nr' with value 'x 120000', 'S/N', 'Priv. label Distrib.' with value 'x 15', 'Write Protect' with a toggle switch set to 'Off', and 'Local Adjust. screw' with a toggle switch set to 'Enable'. At the bottom are 'Read' and 'Write' buttons.

Transmitter information	
<u>Tag</u>	Tag number of the measuring device
<u>Model</u>	Fuji transmitter model number
<u>Descriptor</u>	Description of the measuring point
<u>Date</u>	Date
<u>Message</u>	Possible message can be written in 32 digits
Final Assembly number	
S/N	
Private Label	
Write Protect	Enables or inhibits the write function in the different panels
<u>Local Adjust. screw</u>	Enables or inhibits the adjustment screw on the transmitter electronics housing

Measurement cell information panel

HART	Transmitter	Meas.Cell	Process	LCD ind.
------	-------------	-----------	---------	----------

Measuring cell information : FCX-A/C II.

Measuring cell information

Upper Sensor Limit	160.000		Body	12345678
Lower Sensor Limit	0.000	Unit		
Minimum span	1.600	mbar		

Read

Wipe

Measurement cell information	
Upper sensor limit	Maximum setting limit
Lower sensor limit	Minimum setting limit
Minimum span	Minimum span
Unit code	Unit (can not be changed)
Body	

Please mind :

Upper/lower sensor limit corresponds to the interval between upper and lower sensor limits for the possible setting of the span of the measuring device. This interval does not correspond to the max. range of the device.

Process information panel

Process information : FCX-A/C II.

Process

Process Value: 0.05 kPa

Analog Value: 15.332 mA

Recent Range: 70.83 %

PV (%)

100.00
80.00
60.00
40.00
20.00
0.00

Settings

Unit: kPa

URV (20 mA): 16.000 kPa

LRV (4 mA): -16.000 kPa

Damping: 0.12 Sec

Burst mode

high - 21.6 mA

on hold - 3.8 mA

low - 3.8 mA

Transfer Function: Square root output


Cut Point: Linear Output

✓ Square root output

Read Write

Process information	
Process value	Process value indicated in the programmed unit
Analog value	Analog output signal
Percent range	Output in % - also indicated on the bar graph
Unit	Programmable unit for the software
URV	Upper range value (20mA)
LRV	Low range value (4 mA)
Damping	Damping of the output signal
Burnout	Burnout mode is selectable between high (over scale), hold, and low (under scale). In case on high and low burnout, the burnout values are programmable for high between 20.8 to 21.6 and for low between 3.2 and 3.8 mA output signal
Transfer function	Transfer function allows to program the output signal in linear or square root.
Cut Point	Cut point, (the start of the output signal in square root) for square root output is programmable between 0 and 20% of output.

FUJI HART EXPLORER

Process information : FCX-A/C II.			
Process			
Process Value	0.05	kPa	<div>PV (%)</div> 
Analog Value	15.332	mA	
Recent Range	70.83	%	
Settings			
Unit	▼ kPa		
URV (20 mA)	16.000	kPa	Burst mode high - 21.6 mA ▼ on hold - 13.3 mA ▼ low - 9.3 mA ▼
LRV (4 mA)	-16.000	kPa	
Damping	0.12	Sec	
Transfer Function	Square root output ▼		
Cut Point	7.07		
<div>Read Write</div>			

LCD indicator information panel

The LCD indicator can be configured concerning the values to be indicated and the units.

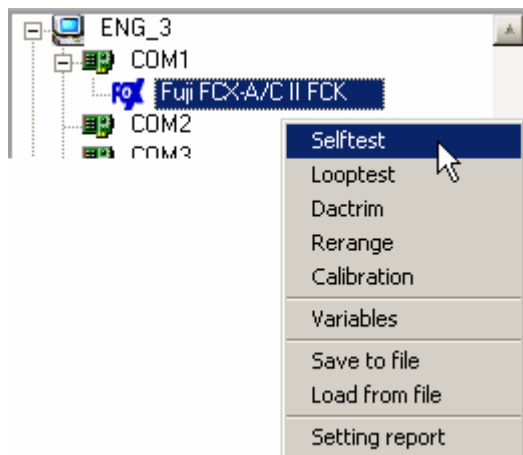
The screenshot shows the 'LCD indicator information' panel in the FUJI HART EXPLORER software. The panel has a top navigation bar with buttons for 'HART', 'Transmitter', 'Meas.Cell', 'Process', and 'LCD ind.'. The main title bar reads 'FCX-A/C II : LCD indicateur informations.'. Below this, the 'LCD indicator information' section contains four settings: 'URV (20 mA)' set to 100, 'LRV (4 mA)' set to 0, 'Decimal Point Position' set to 2, and 'Unit' set to Pa. At the bottom are 'Read' and 'Write' buttons.

Process information	
<u>URV (20mA)</u>	Indication for 20 mA output signal
<u>LRV (0mA)</u>	Indication for 4 mA output signal
<u>Decimal Point Position</u>	Configure the decimal point position of the indication
<u>Unit</u>	Unit of the indicator A large quantity of LCD indicator units are available for pressure, flow and level indications. If you choose a flow unit, the indicated value will be <u>automatically a flow indication in square root independent of the output signal mode.</u> (see transfer function). If a pressure or level unit is programmed, the indication will be linear.

Device functions

Introduction

You can access the device functions in online mode by right clicking on the device item in the tree view.

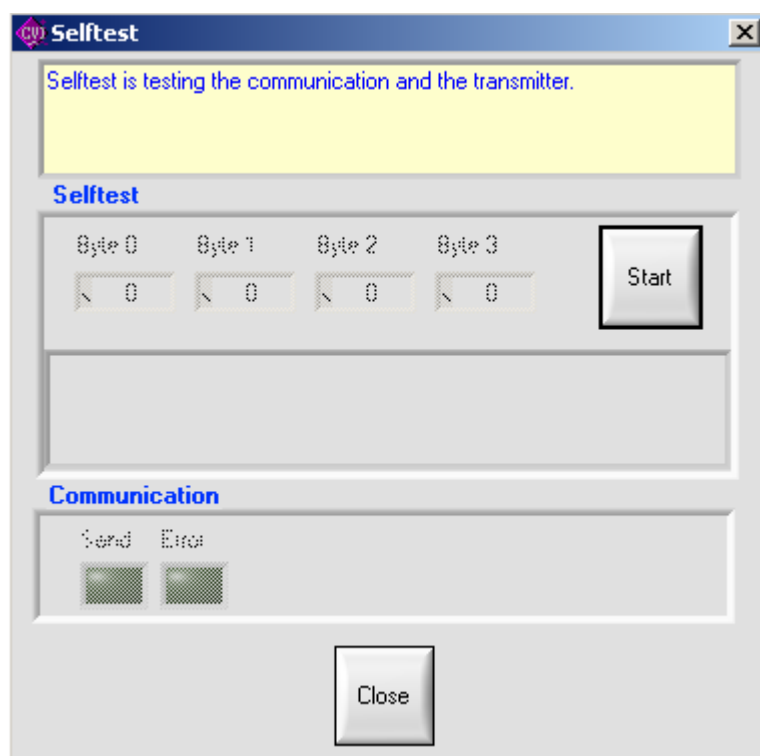


Self test function

Introduction

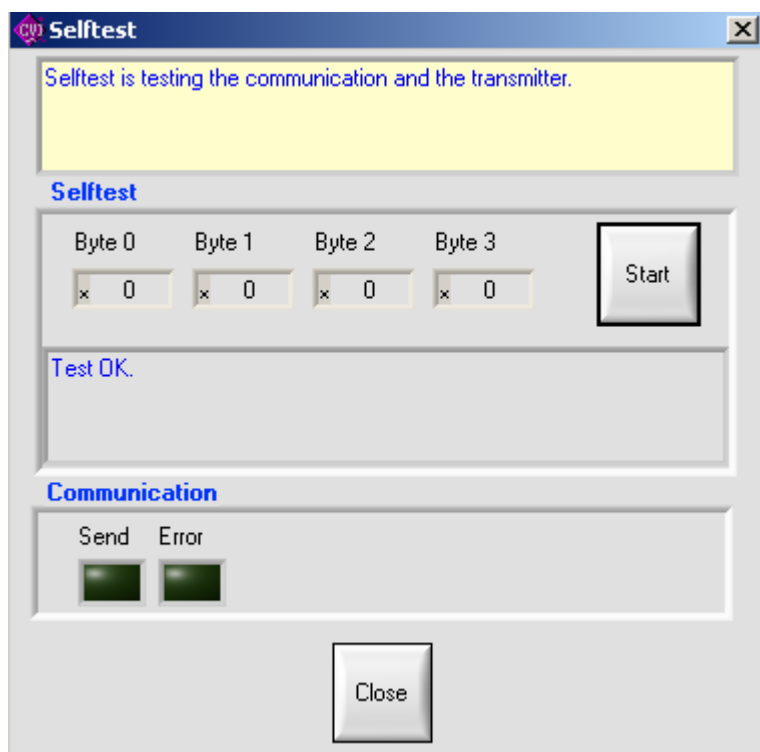
Procedure

This panel is very simple. Just click on start button to proceed the test.



FUJI HART EXPLORER

After the test, you can read the response code (4 status bytes).



Response code	
0	No command-specific errors
6	Transmitter-Specific command error

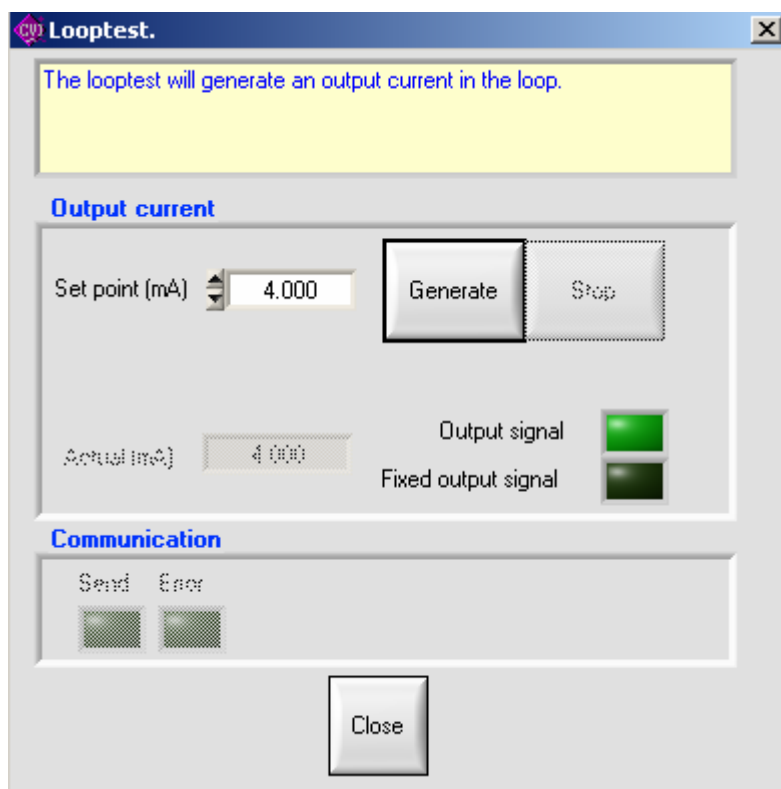
Loop test function

Introduction

Fix the analog current at specified value.

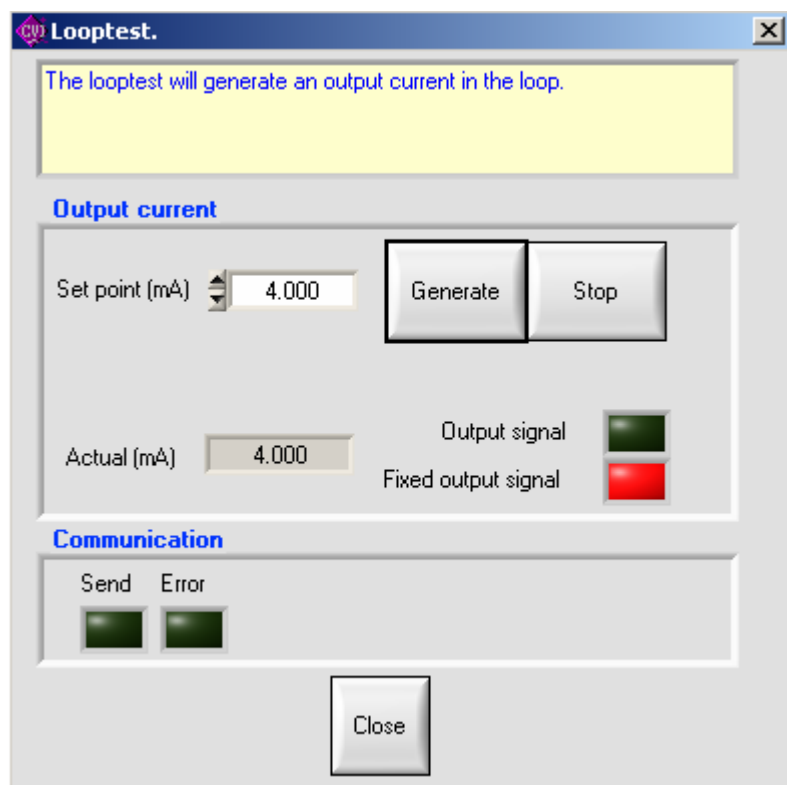
Procedure

Type in the set point value, and click on generate button :



FUJI HART EXPLORER

The device is in fixed output signal and the actual value is displayed. Click on stop button or close button to go back in output signal.



Dactrim function

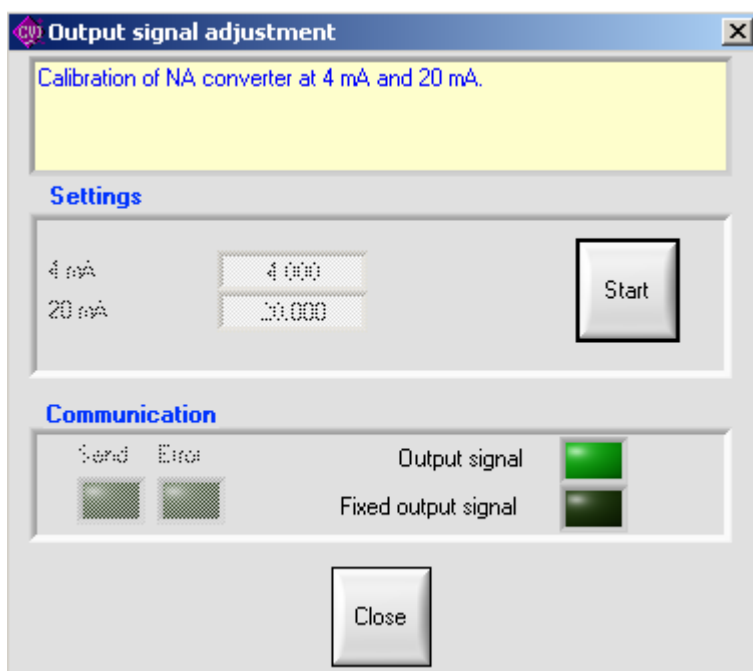
Introduction

This function will adjust the output signal. It will

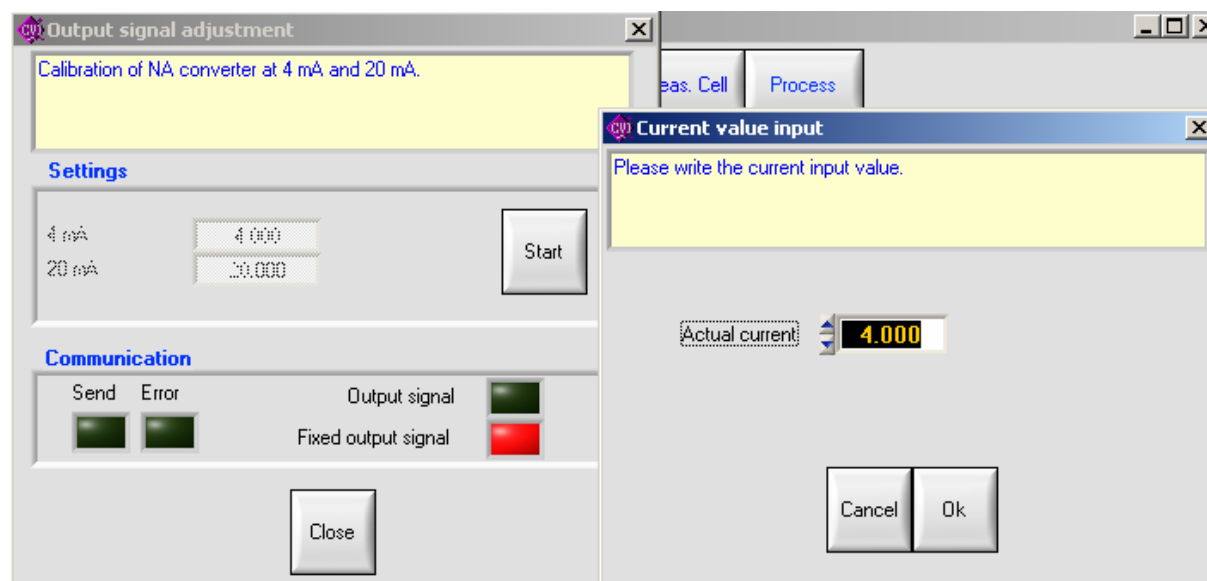
TRIM THE ZERO OR 4 MILLIAMP POINT OF THE DIGITAL TO ANALOG CONVERTER SO THAT THE CONNECTED CURRENT METER READS 4 MILLIAMP.

TRIM THE GAIN OR 20 MILLIAMP POINT OF THE DIGITAL TO ANALOG CONVERTER SO THAT THE CONNECTED CURRENT METER READS 20 MILLIAMP.

Procedure



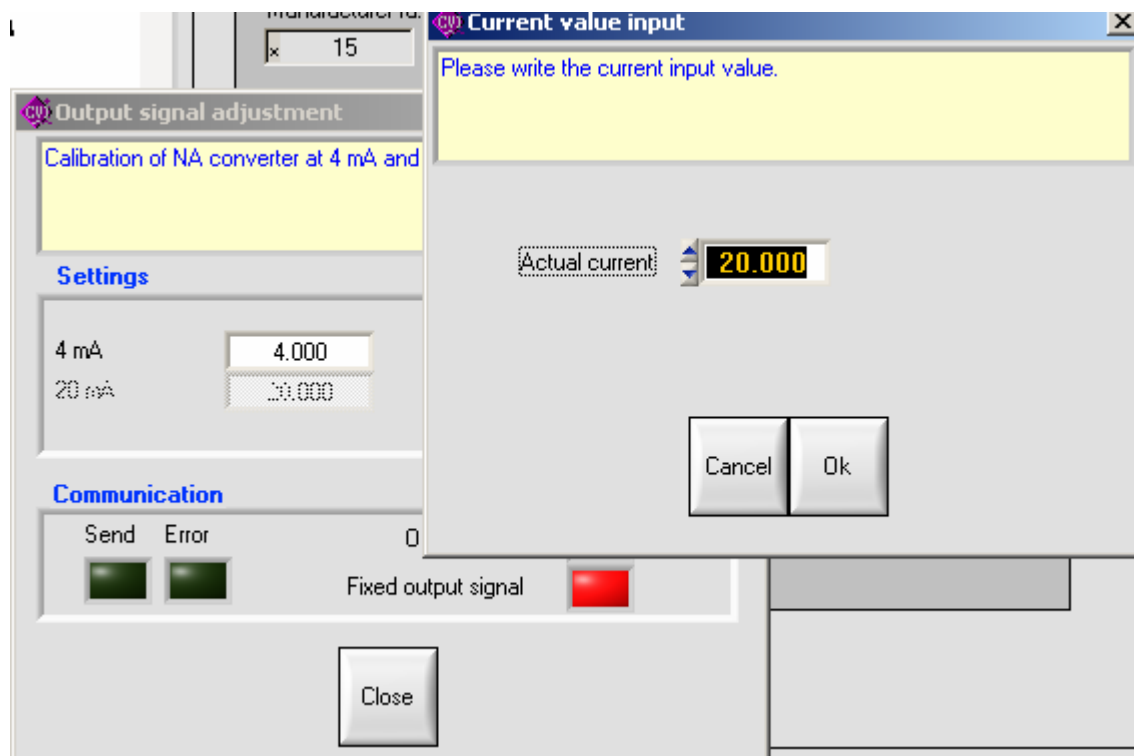
When clicking on START button, the following window is displayed.



Enter the output signal displayed on the milliamp – meter connected to the transmitter in the “actual current” space.

- first for the LRV
- next for the URV

Calibrate the output signal only with a high accurate milliamp – meter (3 digits after the point)
Close the window on “Close” button.



Re range function

Introduction

This function is mainly used for an easy adjustment of the zero elevation or suppression for example on a liquid level measurement.

The reference pressure needs to be applied on the transmitter for zero and adjusted span to use this function. (for example : wet leg has to be filled for a level measurement)

When the zero elevation/suppression (on Rerange LRV button) is adjusted, the calibrated span will also be elevated or suppressed of the same value than the zero.

Procedure

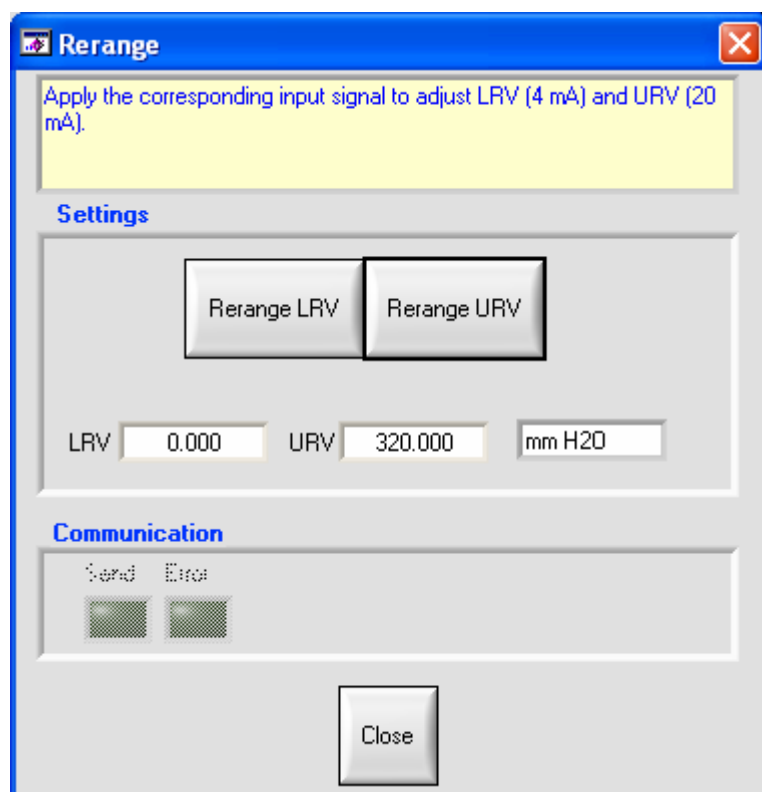
Mount the transmitter in the application condition.

Click on Rerange LRV for the 4 mA output adjustment (reference pressure is required)

Click on Rerange URV for the 20 mA output adjustment (reference pressure is required)

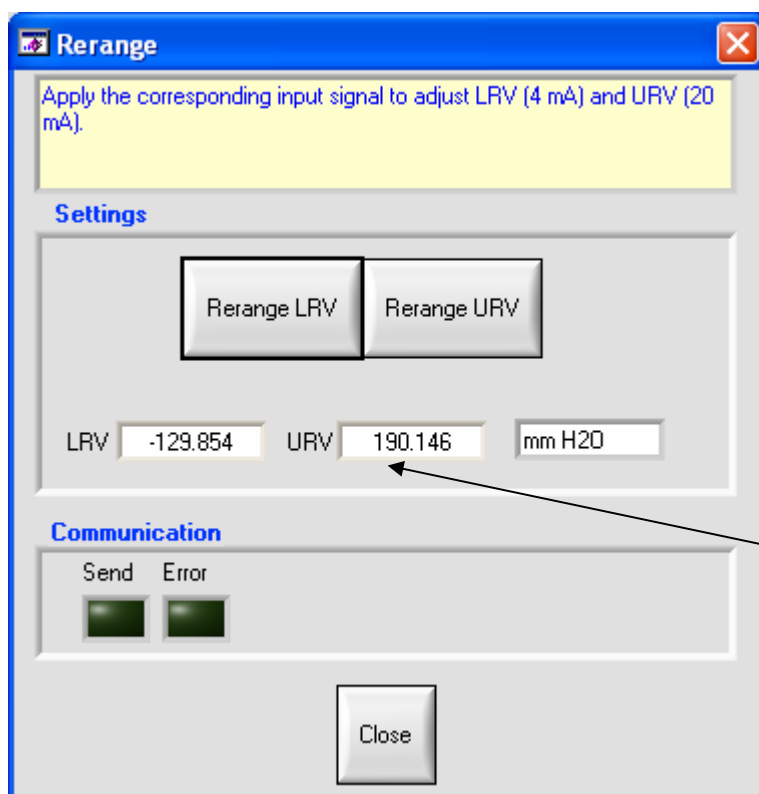
Close the window after adjustment.

Example : Transmitter before Re ranging of LRV for zero suppression or elevation :



FUJI HART EXPLORER

Example : Zero elevation is done by clicking on LRV button :



Please mind LRV and URV values showing the zero elevation without changing the transmitter span

Calibration function

Introduction

Zero and span can be calibrated by applying the accurate reference pressure and by applying on the concerned buttons.

Accurate reference pressure is required corresponding to zero and span.

Procedure

Zero calibration example :

The screenshot shows a software window titled "Calibration" with a blue title bar and a close button (X) in the top right corner. Inside the window, there is a yellow message box at the top that reads: "Calibration should be perform by applying the corresponding input value." Below this, there is a "Settings" section with a unit selector set to "mbar". Under "Settings", there are two input fields for range: "0.000" and "320.000", each with up and down arrow buttons. To the right of these fields are two buttons: "LRV (4 mA)" and "URV (20 mA)". Below the range settings, there are two more input fields: "Current (mA)" with the value "3.998" and "PV (%)" with the value "-0.01". At the bottom of the window, there is a "Communication" section with two buttons labeled "Send" and "Error", both of which are currently disabled (grayed out). A "Close" button is located at the bottom center of the window.

FUJI HART EXPLORER

Span calibration example :

The screenshot shows the 'Calibration' window of the Fuji HART Explorer software. The window has a blue title bar with the text 'Calibration' and a close button. Below the title bar is a yellow instruction box that reads: 'Calibration should be perform by applying the corresponding input value.' The main area is divided into two sections: 'Settings' and 'Communication'. In the 'Settings' section, there is a unit dropdown menu set to 'mbar'. Below it are two input fields for range: '0.000' and '320.000'. To the right of these fields are two buttons: 'LRV (4 mA)' and 'URV (20 mA)'. Below the range fields are two more input fields: 'Current (mA)' with the value '19.998' and 'PV (%)' with the value '99.99'. The 'Communication' section contains two status indicators: 'Send' and 'Error', each with a green square icon. At the bottom center of the window is a 'Close' button.

Calibration

Calibration should be perform by applying the corresponding input value.

Settings

mbar

0.000

320.000

LRV (4 mA)

URV (20 mA)

Current (mA) 19.998

PV (%) 99.99

Communication

Send Error

Close

Process values monitoring function

Introduction

This panel allows you to monitor the process values. The maximum duration depends on your free disk space.

You can set the following parameters :

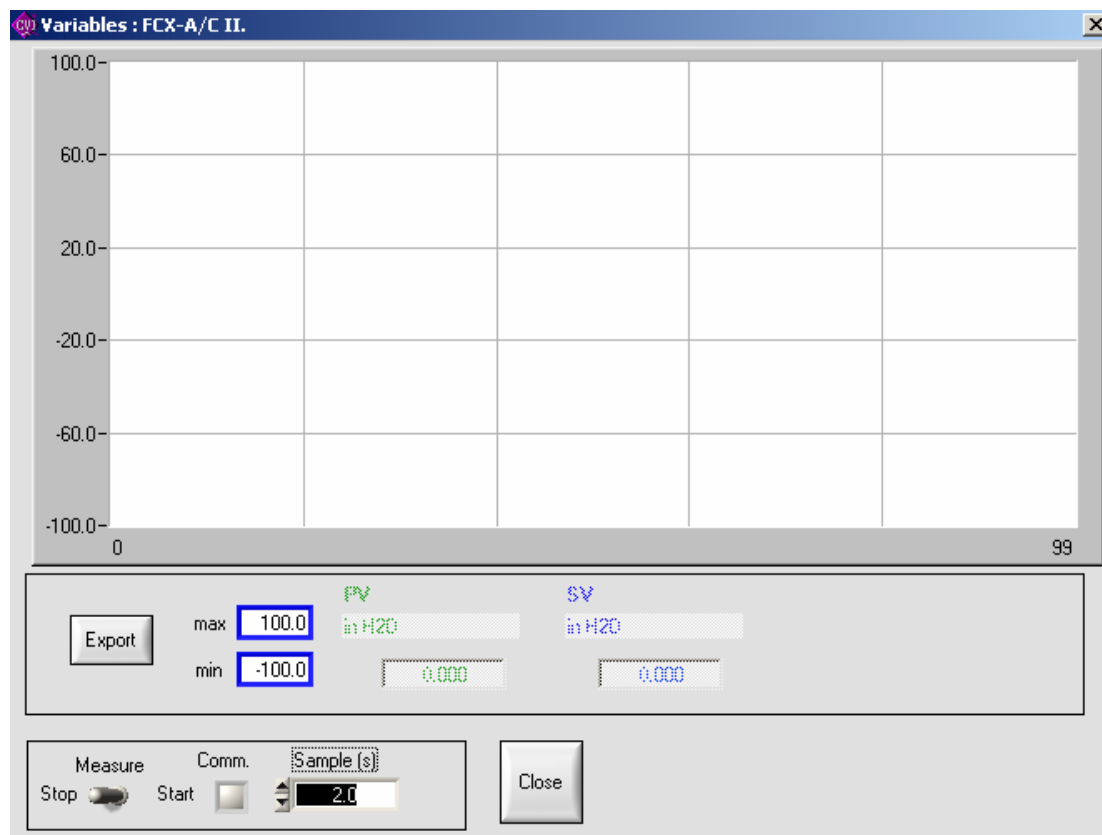
PERIOD (IN SECOND)

MINIMUM AND MAXIMUM AXIS VALUES OF THE GRAPH

After the monitoring, you can export data to a CSV (Comma Separated Value) file compatible with Excel.

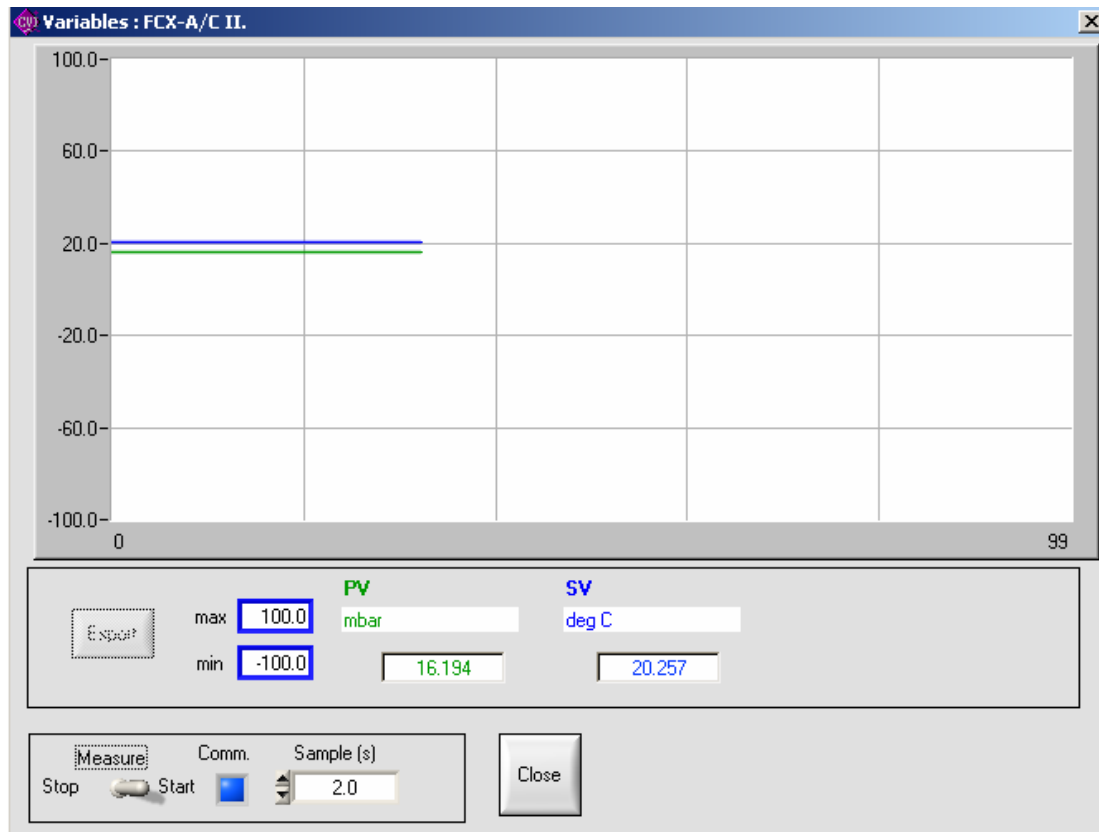
Procedure

Set the parameters and click on start button.



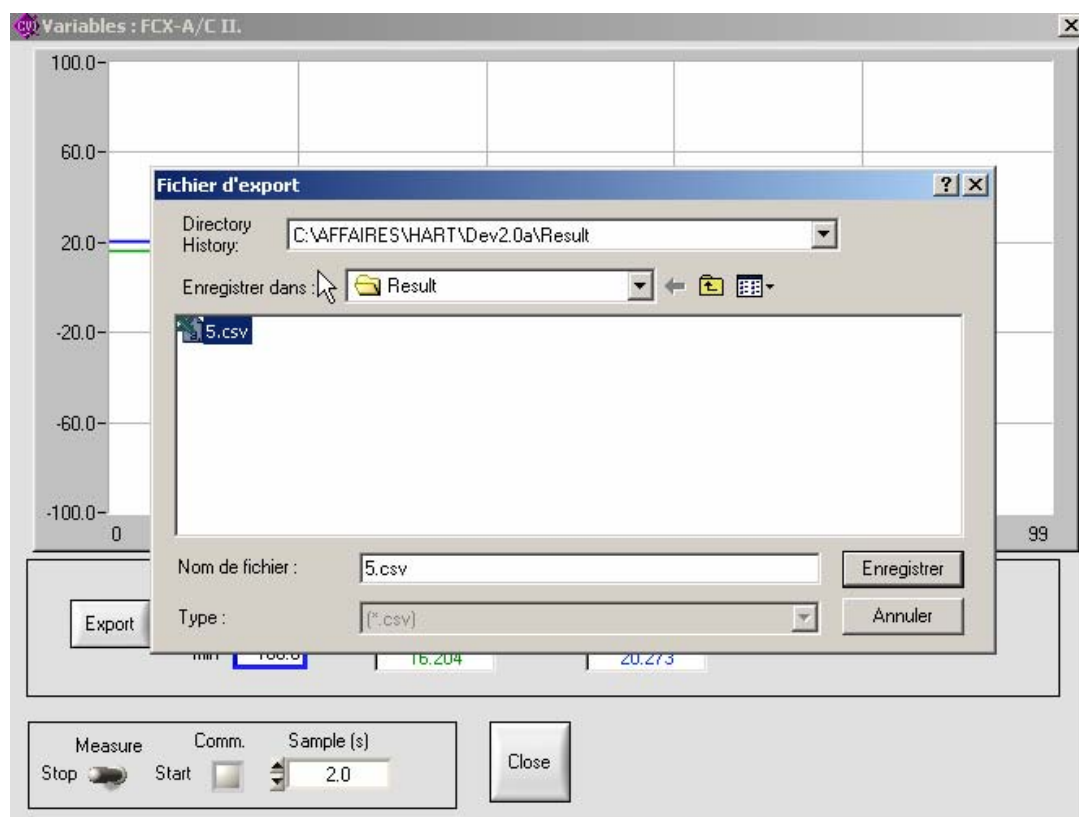
FUJI HART EXPLORER

Example of recoding the process values every 2 seconds.



Click on stop button, stops the monitoring. Export button is available. If you click on it, you will be asked to name the file.

FUJI HART EXPLORER



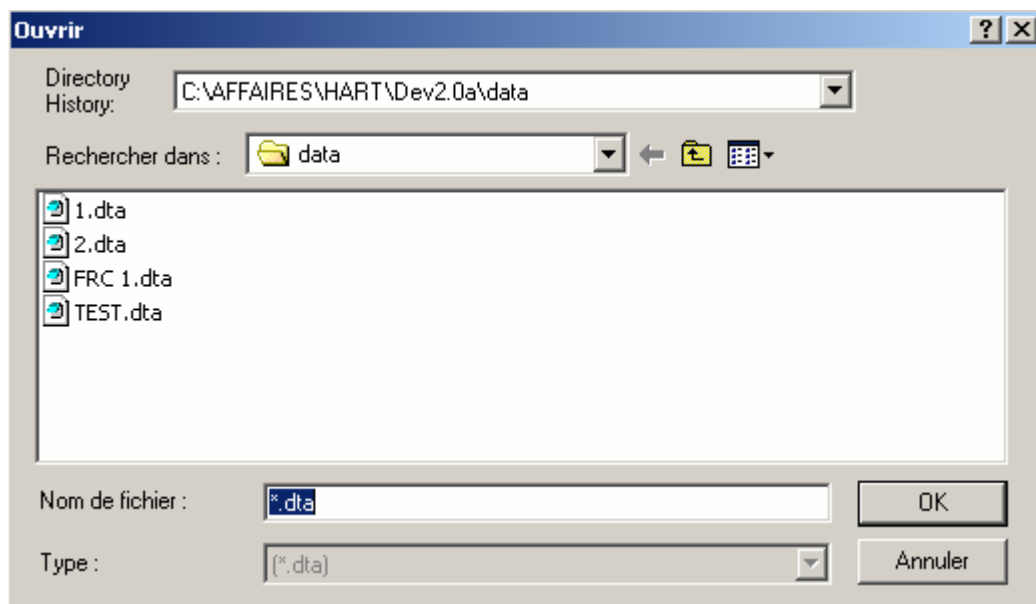
Saving parameters function

Introduction

This function allows you to save all the parameters displayed in the panels into a file. After that operation, you can download the file in the device or work on it using the offline mode.

Procedure

Select the menu and choose a name file.



The saved parameter file will be displayed in the tree view under “off line”.

Warning: it's impossible to load a parameter file if you don't use the same language.

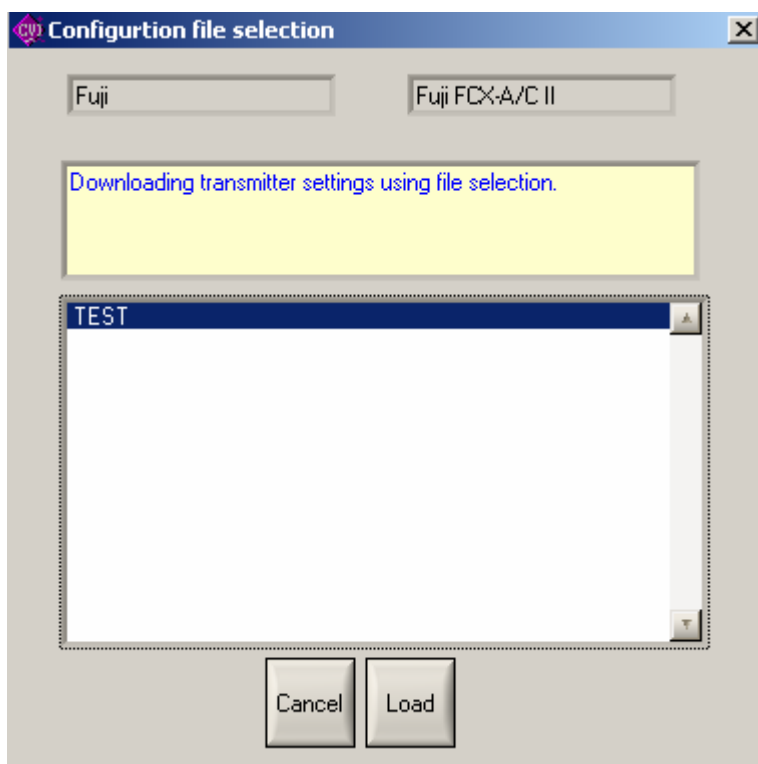
Loading parameters function

Introduction

This function allows you to write all parameters already saved into an existing device. Only the parameters of saved transmitter configurations are displayed in the panels.

Procedure

Select the function and choose the file corresponding to the kind of your device.



Parameters reporting function

Introduction

The report function is useful for taking a picture of your parameters. This function displays the parameters of all the panels into your browser. So you can print it, saved it using your browser.

Procedure

After selection in the menu, a new window is opened in your browser. You can see a title and a 3 column tab of parameters for each panel. The tab show you the parameter description, value and value meaning.

FUJI ELECTRIC FRANCE : Hart Explorer

2005-11-22 10:12:05

HART information : FCX-A/C II

Manufacturer Id.	0x15	Fuji
Device type code	0x2	FCX-A/C II
N° of preambles	5	
Universal command rev.	0x5	
Transmitter specific rev.	0x2	
Software rev.	0x6	
Hardware rev.	0x8	
Device func. flags	0x0	
Device id.	0x23456	
Polling address	0	

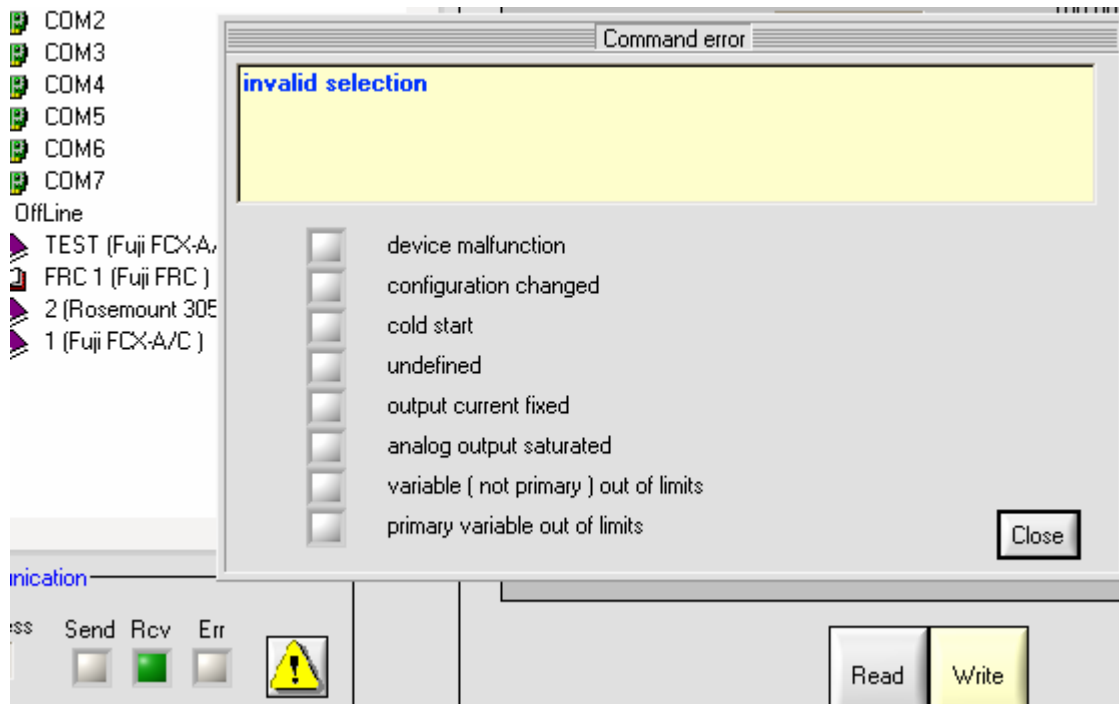
Transmitter information : FCX-A/C II.

Message		
Descriptor		
Date	00/00/00	
Write Proctect	Off	

Annexes

Communication error

If an error occurs during the communication with the device a button appears. If you press that button, you will see a panel explaining the error.



This window can show you multiple error messages : maybe only one is correct in your case.