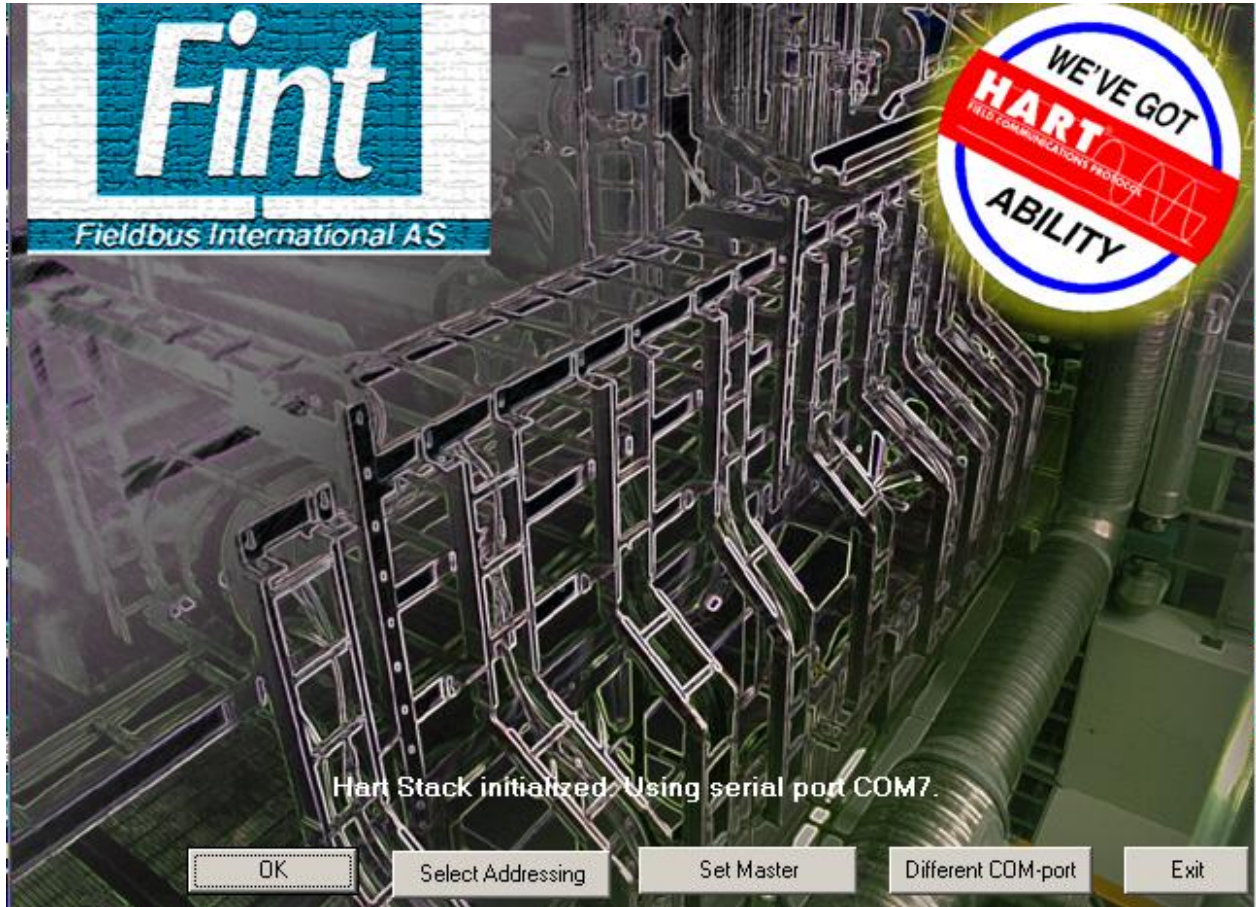


Orange Instruments EX200-HART PC Communications Software – SW002**Installation**

The software will run on WIN95 through to Windows XP. Run SETUP from the CD or downloaded software. Install your PC HART modem and note the communication port used by searching the Device Manager setting in Control Panel.

Initialising the software

Create a shortcut from the application, hartmaster.exe, and double-click the shortcut. The following window will appear:



Click on **Different COM-Port** and enter the port on which the HART modem is running. The modem must be connected to the PC and the HART enabled target with 240R in the HART / analog loop. You might be asked to **Exit** and restart but this initial procedure should only be necessary on first time use.

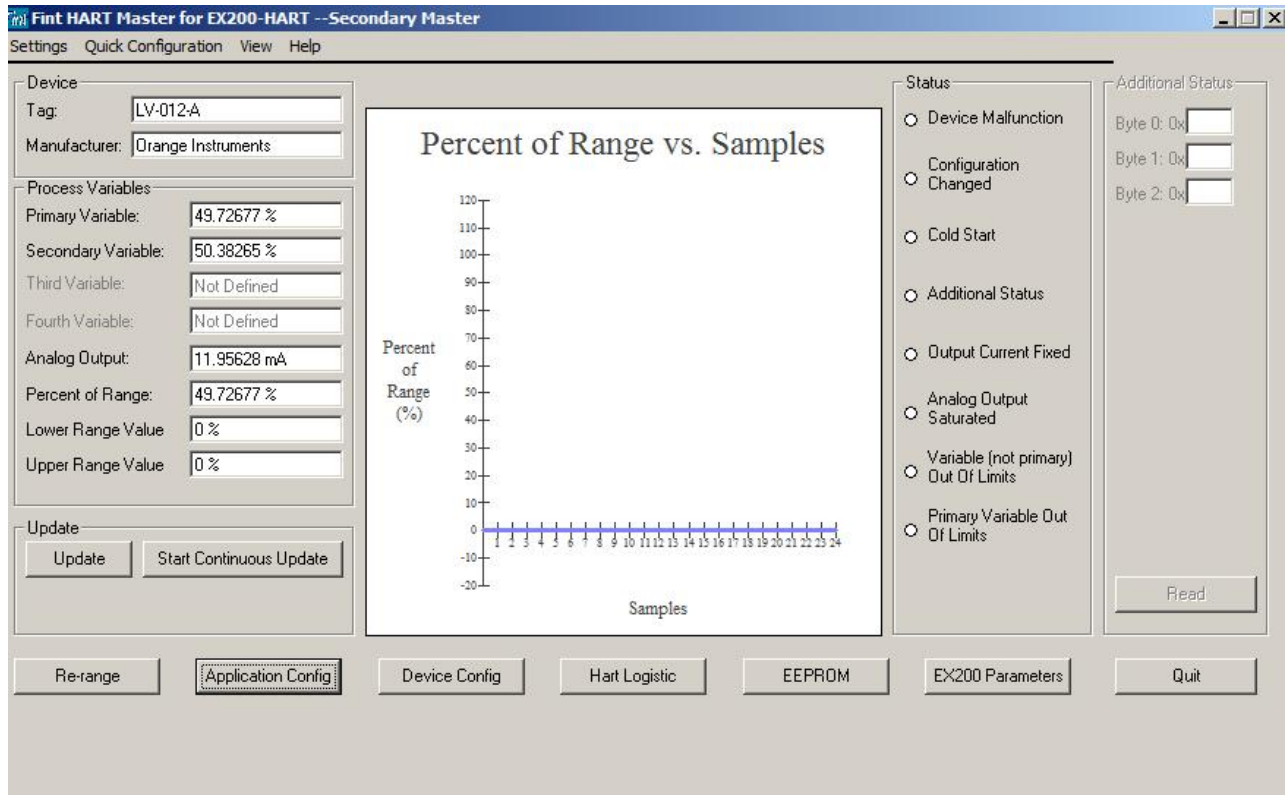
If modem is not connected to the PC, then a message **Internal Error. Try restarting the program. Unable to initialise the...** will show. If the modem is not connected to the target, then the following window will appear



Otherwise, click onto **OK** and wait for the application to run.

Main screen

The main screen gives access to all features of the communications package



Current information

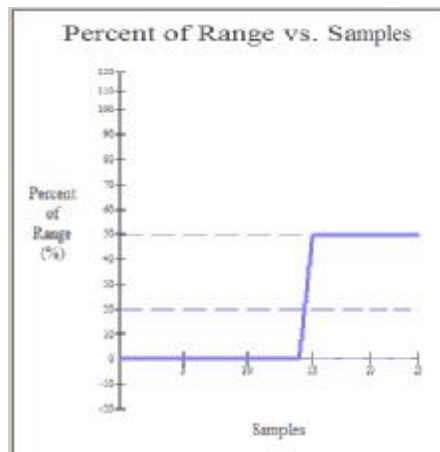
The left hand side of the window displays the current information from the HART enabled target. The third and fourth variable and the two range values are not used within the EX200-HART.

Update Button

The update button refreshes the displayed data by sending Command 3 and receiving the response.

Start Continuous Update Button

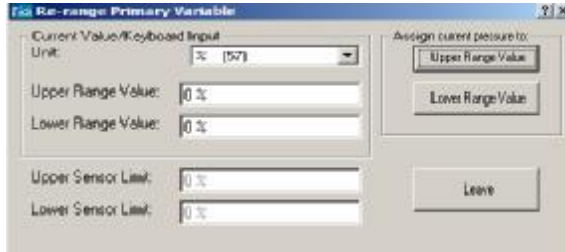
This sends Command 3 continuously and displays the Primary Variable, actual position as a percentage.



The upper dashed line represents the current value and the lower is the average value over the duration of the Continuous Update. In time, with a steady signal, the two lines will merge. The continuous update can be stopped by clicking the Stop Continuous Update button.

Re-range Button

This button displays embedded data that cannot be edited in this application.



Click Leave to close the window.

Application Config Button

This button displays embedded data that cannot be edited in this application.



Click Leave to close the window.

Device Config Button

This button allows the editing of the field-specific description of the EX200 and associated equipment.



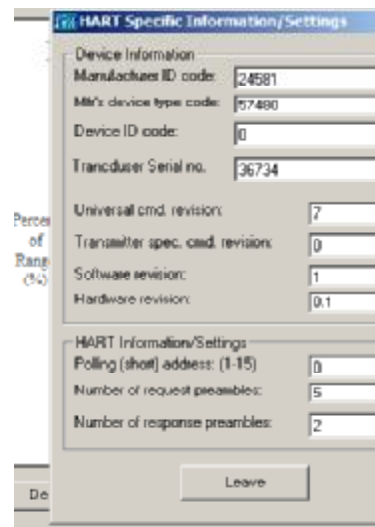
All the fields can be edited:

- Tag - 8 alphanumeric characters
- Date - YYYY MM DD
- Descriptor - 16 alphanumeric characters
- Message - 32 alphanumeric characters
- Final Assembly # 8 alphanumeric characters

Enter the data then press ENTER on the PC to transmit data to the EX200. Click Leave to close the window.

HART Logistics Button

This button displays embedded data that cannot be edited in this application.



Click Leave to close the window.

EEPROM Button

You can modify the contents of the EX200-HART EEPROM non-volatile memory.



All data has to be entered in decimal but it can be viewed in hex. Users are advised NOT to modify any locations unless they have precise instructions from Orange Instruments Limited. Click Leave to close the window.

EX200 Parameters Button

This button gives access to the device specific HART commands in the EX200-HART. The window permits adjustment of the EX200-HART parameters contained in Device Specific Commands 128, 129 and 130. The following parameters can be modified:

- 1) Actuator speed via “stepping” the solenoids
- 2) Positioner “dead zone”
- 3) Drive actuator OPEN, CLOSE or FREEZE, irrespective of the current command signal
- 4) Override the current command signal and position the actuator in the range 0-100.0%.



Send Button

This button sends the current data in the Positioner Parameters box to the EX200-HART, but only if the HART Remote Enabled box is ticked.

Clear bits Button

This button clears any ticks or “radio buttons” in the Positioner Parameters box, but does not send any data to the EX200-HART.

Refresh Button

This button reads the data sent from the EX200-HART in response to Command 128 – Read positioner parameters.

Exit Button

This button closes the window.

HART Remote Enabled

If this box is ticked then all the current parameters will be sent to the EX200-HART when the Send button is pressed. Otherwise the EX200-HART will respond to the instrument front panel adjustments. This flag can be modified during a “power-up” routine described in the EX200-HART handbook, page 3.

Solenoid Speed

If this box is ticked and the Send button is pressed then the positioner solenoid outputs will change from continuous to stepping, using the ON-OFF timers shown in the four entries at the top of the Positioner Parameters box with each unit representing 100mS. These values will override those set on the EX200-HART front panel.

ESD and Fault O/P

If the box is ticked then the ESD solenoid and the FAULT outputs on the EX200-HART operate together and are triggered by either an analog signal break or a break in the external fault input. If the box is clear then the ESD solenoid reacts only to a signal break and the FAULT output only to a break in the external fault input.

Dead zone [%]

This parameter can be set with a resolution of 0.1% of the span of the positioner only with HART Remote Enabled ticked and after the Send button is pressed.

Take setpoint

If this box is ticked and the Send button is pressed then the value in the Command Signal box, in the range 0 to 1000 representing 0 to 100%, will replace the current analog command signal and the positioner will move to this new position. Check that the desired value is in the Command Signal box and ENTER has been pressed on the PC before Send button is pressed.

Hart Override 1

If this box is ticked and the Send button is pressed then the actuator will “freeze” at its current position, even if the analog or the HART command signal change.

Hart Override 2

If this box is ticked and the Send button is pressed then the actuator will DECREASE continuously, even if the analog or the HART command signal change.

Hart Override 3

If this box is ticked and the Send button is pressed then the actuator will INCREASE continuously, even if the analog or the HART command signal change.

Status Box

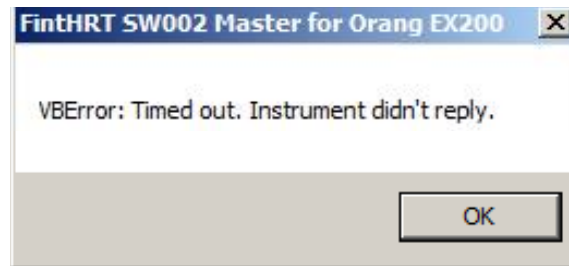
The Status box is not implemented in this application.

Quit Button

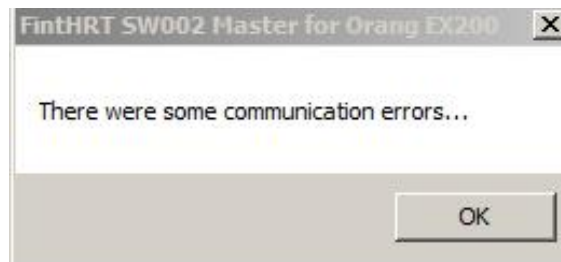
Clicking on this button will close the application.\

Error conditions

The HART modem has to be connected to an active target to enter the application successfully. The modem can be disconnected and reconnected and the target can be powered down and up whilst the application is active without any problem. If there is a failure in connection between the target and the modem or the target is powered down, then the following message will appear when a HART command is attempted.



Clicking onto OK allows a further attempt at communicating with the same window showing again. Following a further acknowledgement, the following window shows.



Clicking onto OK resets the application. The response data from the failed command will show as ??? in the relevant boxes. This cycle will repeat for each attempt at communication if the connections or target are not returned to normal working order.

If there is a break in communication between the HART modem and the PC then the same sequence of error messages will be seen. However, it will be necessary to exit the application and then restore the connection before restarting to re-initialise the driver for the HART modem.