



UNICORN iFix Integration



Introduction

Market requirements today are focused on solutions that deliver optimal performance in terms of:

- Time to market
- Cost efficiency
- Reliability and high quality

Large pharmaceutical production plants contain many components that must work smoothly together. One key element in plant architecture is the information management strategy. The problem of transferring the various components into an integrated plant becomes obvious when different components speak different languages. However, if a unified language is used translation becomes unnecessary and efficiency increases. OPC provides this kind of unified communication language among modules in a process plant.

OPC is a standard specification that allows data management from any data source within a production environment. OPC defines a standard set of interfaces allowing the creation of a client/server model where any OPC client (any application interested in data) can communicate with any OPC server (any application providing data). UNICORN™ supports the following OPC standards:

- Security
- Data Access (DA)
- Alarms & Events (A&E)
- Historical Data Access (HDA)

Any OPC client can communicate with any OPC server (local or remote) since the interfaces required for communication are guaranteed to be the same for all servers. A local OPC server is a server found on the same machine as the OPC client, a remote OPC server is a server found on a different machine than the OPC client.

Objective

This application note describes how UNICORN Run Time Data can be viewed and stored to a database by a third party application by using OPC as communication platform.

Products used

The following products were used for this application:

- Intellution as a vendor for OPC Client. The software used is iFIX 3.0 and I/O Driver Ver 7.32c
- Windows™ 2000 or 2000 Server Operating System
- UNICORN 4.11

The OPC Client and OPC Server are located in separate PC's. Table 1. shows the setup used for this application note. The PC's communicate via TCP/IP.

Table 1.

PC 1	PC 2
iFIX 3.0	UNICORN 4.11
I/O driver ver. 7.32c	ÅKTAFLC™
WIN 2000 Server	WIN 2000
UNICORN 4.11 (Demo)	

Implementation

In this example iFIX 3.0 is used for SCADA/HMI while I/O Driver Ver 7.32c is the OPC client driver. Table 1 shows where each component needs to be installed.

Note: Intellution I/O Driver Ver 7.323c supports the OPC Data Access Server only. Alarm & Events Server will be available in the future versions.

The procedure in this application note assumes that user is familiar with Intellution products (iFIX 3.0 and I/O driver).

1 Configuring SCADA

This step provides iFIX with information about which tool to use and where to locate the UNICORN OPC Server.

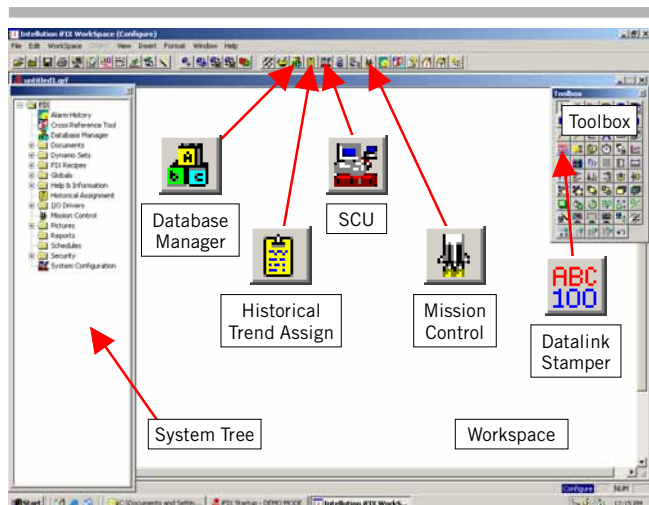


Fig 1.

- 1.1 Launch iFIX 3.0 program (Fig 1).
- 1.2 Click the **SCU** icon to open the configuration window.

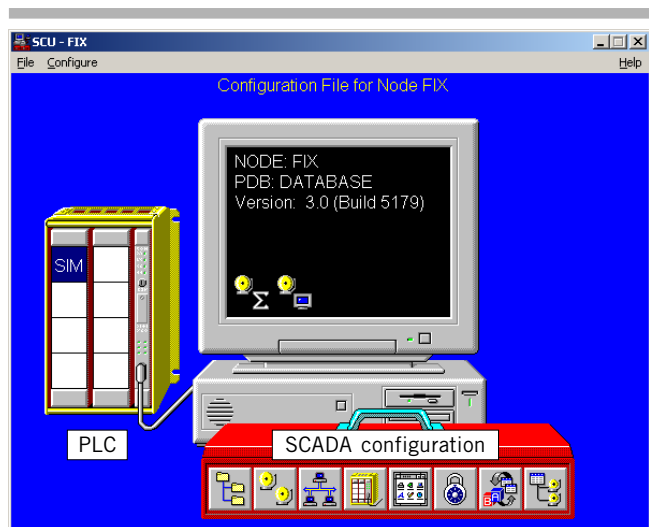


Fig 2.

- 1.3 Click the **SCADA configuration** icon (Fig 2).
- 1.4 Click “?” (I/O Driver Name:) → **OPC – OPC Client v7.32c** → **OK** → **Add**. OPC – OPC Client v7.32c should appear in “Configured I/O Drivers window”. Click **OK**.
- 1.5 Double click “**OPC**” in the PLC symbol (Fig 1) and the text OPC will appear underneath “SIM” after step 1.4 is completed.

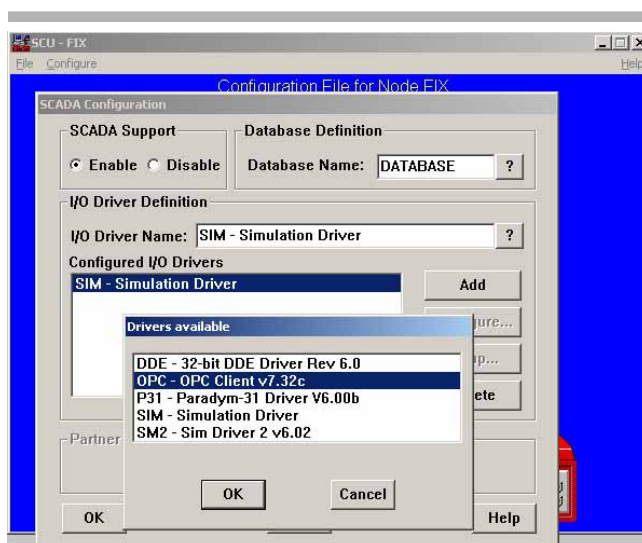


Fig 3.

- 1.6 In I/O Driver Server connection windows select **Use Local OPC Client Driver** → **Connect**.
- 1.7 This will open the “**Power Tool**” window (Fig 4).

2 Configuring Server, Groups and Items

This step instructs how to select an OPC server as well as how to create groups and OPC items.

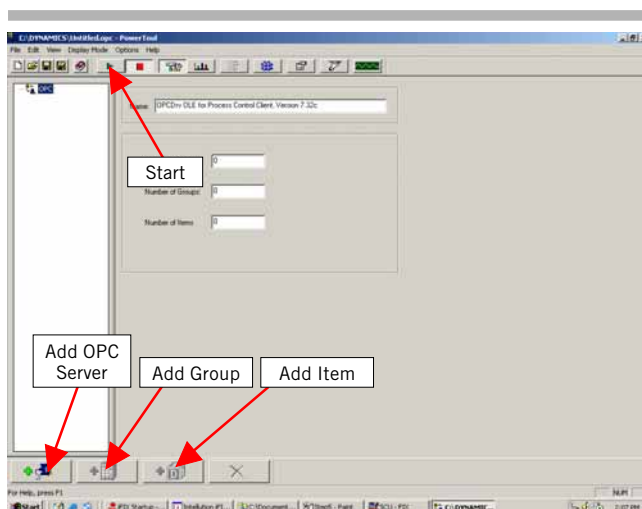


Fig 4.

- 2.1 For this example we will use the following:
 Server name: **Fplcf300**.
 Group name: **Event_Analog**.
 Item name: **Flow, Pressure, UV, etc**.
- 2.2 Click **Add OPC** server icon.
- 2.3 Select **OpcUNIO.opcDA2ServerS0.1** → **OK**.
- 2.4 Type Server Name (Fplcf300), check the **Enable** box.

- 2.5 Change server Location to **Remote**.
- 2.6 Click **Browse Network**, navigate to find **STATION1** (name of PC where UNICORN resides) → **OK**.
Note: The Add Group icon is now highlighted.
- 2.7 Click **Add Group**, type in the group name (Event_Analog), check the **Enable** box. The add item icon will now be highlighted.
- 2.8 Click **Add Item**, type in the item name (Flow), check the **Enable** box, and click **Browse Server** button.
- 2.9 Navigate to find the desired item, click **OK**. The item will now appear in the Item ID (Fig 5).

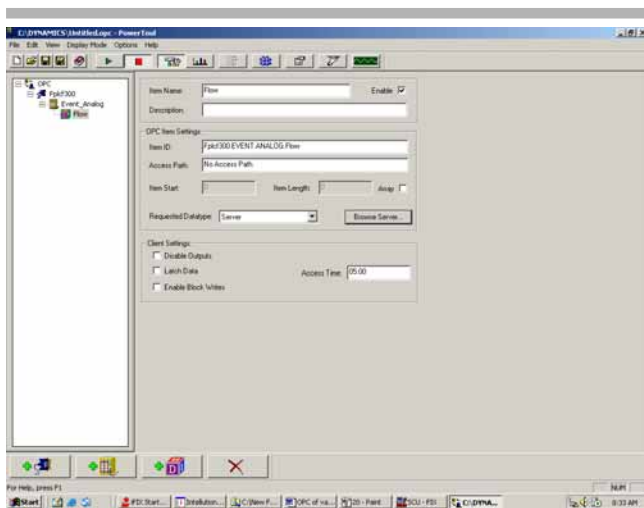


Fig 5.

- 2.10 Repeat this action until all the desired groups created and all items are selected.
- 2.11 Press the **Start** button (Fig 4) to begin retrieving data from the OPC Server.

3 Creating Process Database

iFIX reads process information from the OPC Server and saves it in process databases. These databases are the primary source of process data for most iFIX applications. The main tool for creating and managing process databases is the Database Manager.

In this step we will show how to create an Analog Input in the database. Use the same procedure for other types of data (Analog Output, Digital Input or Output, etc).

- 3.1 Click Database Manager icon (Fig 1).
- 3.2 Check **Open Local Node** → **OK**.
- 3.3 From main menu **Blocks** → **Add** → select **AI** for the analog input block. This will open the Analog Input editor block (Fig 6).
- 3.4 Tag Name: **"FLOW"**.

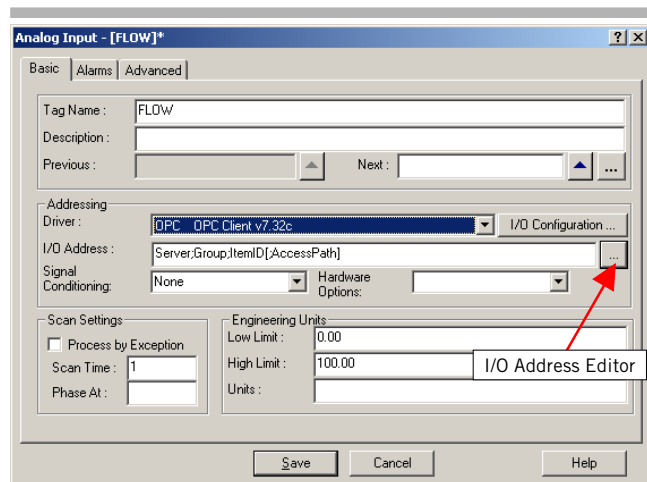


Fig 6.

- 3.5 Description: “enter the desired description”.
- 3.6 Addressing: Driver: select **OPC Client v7.32c**.
- 3.7 I/O Address: Server;Group;ItemID[;AccessPath]
Click the I/O address editor button and replace the following:
Server with: **Fplcf300**.
Group with: **Event_Analog**.
ItemID with: **Fplcf300.EVENT.ANALOG.Flow**
[;AccessPath] with **;;**
The information should be exactly the same as entered in steps: 2.4, 2.7, and 2.9 (Item ID). Click **OK** when finish.
- 3.8 Engineering unit; enter the **Low Limit**, **High Limit**, and **Units**.
- 3.9 Click **Save**.
- 3.10 Click **Yes** at “Place Block On/Off San? Screen.
- 3.11 Repeat steps 3.3 through 3.10 for other items.
- 3.12 When all items programmed, from main menu, **View** → **Refresh** (Fig 7).

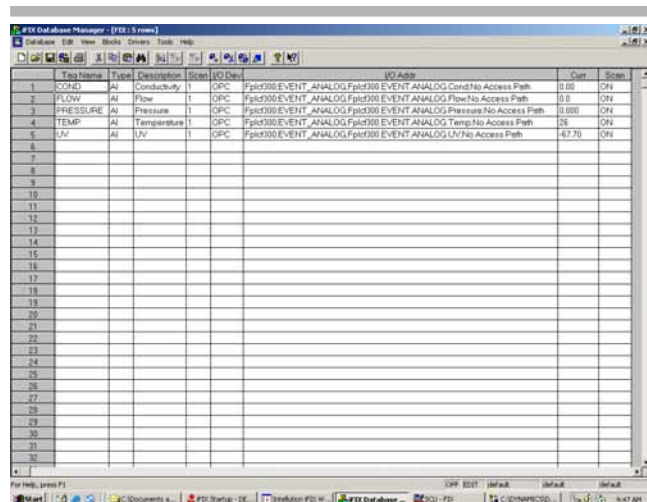


Fig 7.

4 Storing Process Data in Database

In step 3 we created a process database. The data shown is the latest data received. In this step data will be stored until user manually stops the data recording.

- 4.1 From Main menu click “Historical Trend Assign” icon (Fig 1). This will open Historical Assign screen (Fig 8). Check the “**X Hour Files**” box to select the duration of file to be recorded. In this example we select **24 Hour Files**.

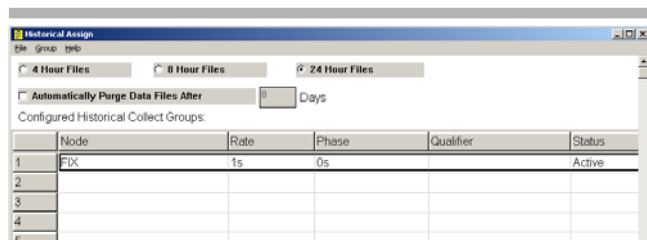


Fig 8.

- 4.2 From the menu, select **Group → Add** to open the configuration screen (Fig 9).
- 4.3 Click the “?” in “**Tagname:**” field.
- 4.4 A window similar to Figure 11 will appear. Follow the same steps to select the tagnames (steps 5.4 to 5.7).
- 4.5 Click “**Add**” button. The item will appear in Tagname Window.
- 4.6 Repeat 4.3 to 4.5 until all Tags are selected.
- 4.7 Select the scan “**Rate**”.
- 4.8 Enter appropriate “**Limit**”. The limit in this case is similar to Hysterisis.

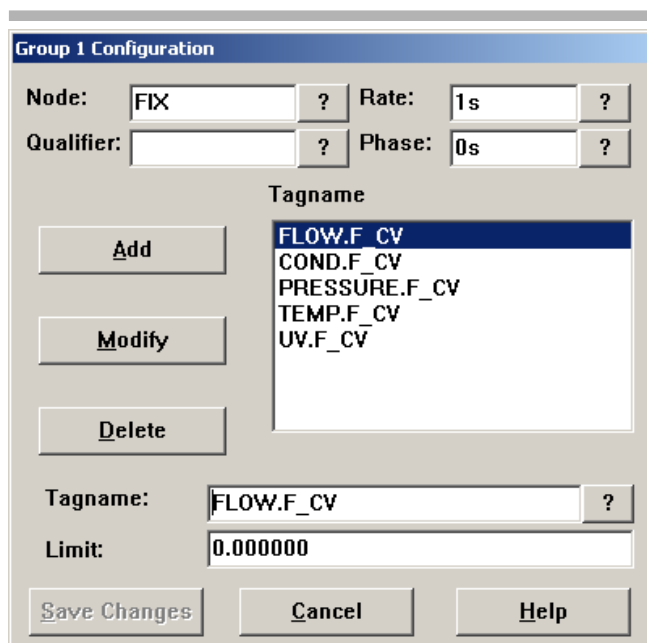


Fig 9.

- 4.9 When completed the Configuration screen should look like Figure 9. Click **Save Changes** to exit.
- 4.10 Save the file, **File → Save As**. Type in the File name.
- 4.11 To begin storing data, click the **Mission Control** icon (Fig 1).
- 4.12 In the Mission Control screen, click **HTC** tab and click **Start** to begin storing data.
- 4.13 To stop data collection, repeat 4.11 and 4.12 above, but press **Stop** instead.

5 Displaying Animated Data (Flow Scheme)

This step describes how to display data in the animation screen (HMI), select predefined animated objects such as valves, pumps, etc. and link the object to the Process Database.

- 5.1 From System Tree (Fig 1) right click **Pictures → New Picture → Finish**. This will open a new Workspace.
- 5.2 From Toolbox, click **Datalink Stamper** icon (Fig 1), to open the Datalink windows (Fig 10).

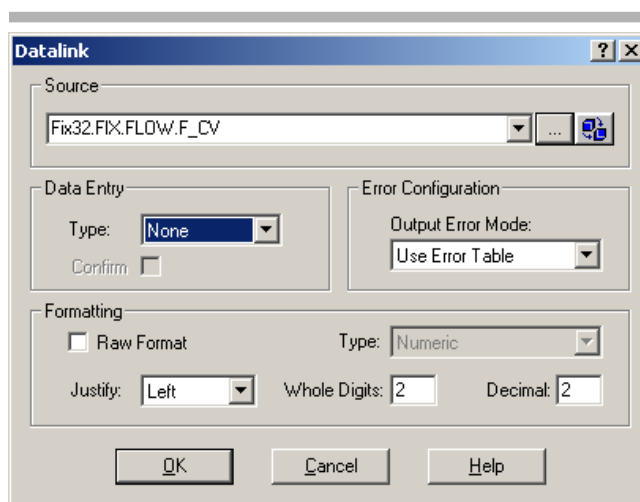


Fig 10.

- 5.3 Click the “...” button on the Source area to open Expression Builder screen (Fig 11).
- 5.4 Select **FIX Database** Tab.
- 5.5 Click on **FIX** in Node Names column.
- 5.6 Select the Tag from Tag Names column.
- 5.7 Click the **F_*** and select **F_CV** from Field Names column. Click **OK**.
- 5.8 Fill in the Whole Digits and Decimal boxes and click **OK** (Fig 10).
- 5.9 A stamp symbol will appear. Click the position on the Workspace where you want the data to be placed.

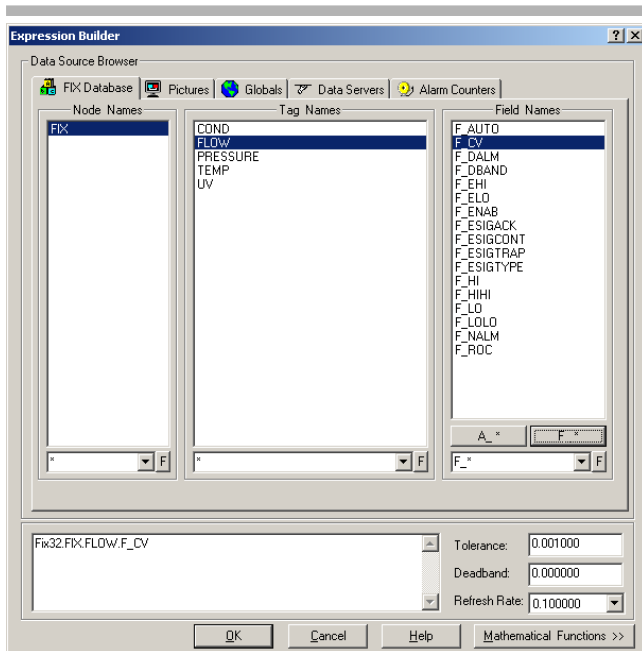


Fig 11.

- 5.10 Hold down “Ctrl” key and press “W” to change the Workspace from **Configure** mode to **Run** mode.
- 5.11 The real data should be displayed.
- 5.12 Similarly, to animate a valves, pipes, pump, etc, select the predefine animated object from the **Dynamo Sets** folder in the **System Tree** (Fig 1).
- 5.13 Double click the category (e.g. “ValveAnim”) to open the window that shows animated valve options.
- 5.14 Select the object and drop it onto the Workspace.
- 5.15 Select the source of data (the procedure is the same as steps 5.4 – 5.7).
- 5.16 See iFIX 3.0 manual for different ways of animate the valve.

6 Viewing Stored Data

This step describes how to display stored data in the form of TREND.

- 6.1 From System Tree (Fig 1) expand **Dynamo Sets** and double click **Historical**.
- 6.2 Click and drag the chart into workspace. A chart configuration dialog box will open (Fig 12).

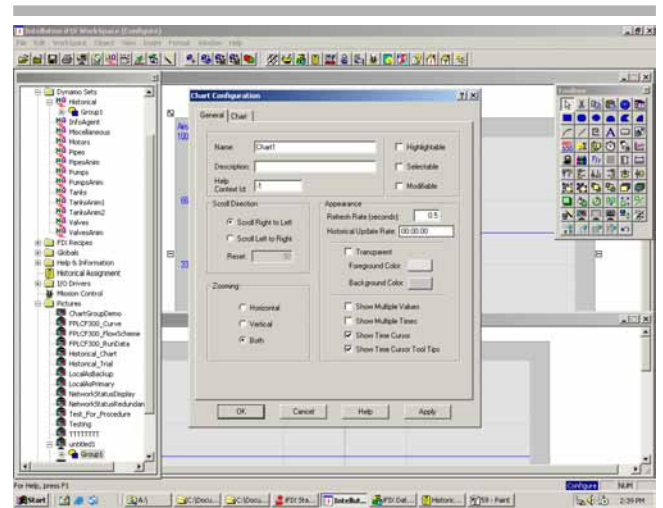


Fig 12.

6.3 Fill in the information in the **General** tab as shown (Fig 13).

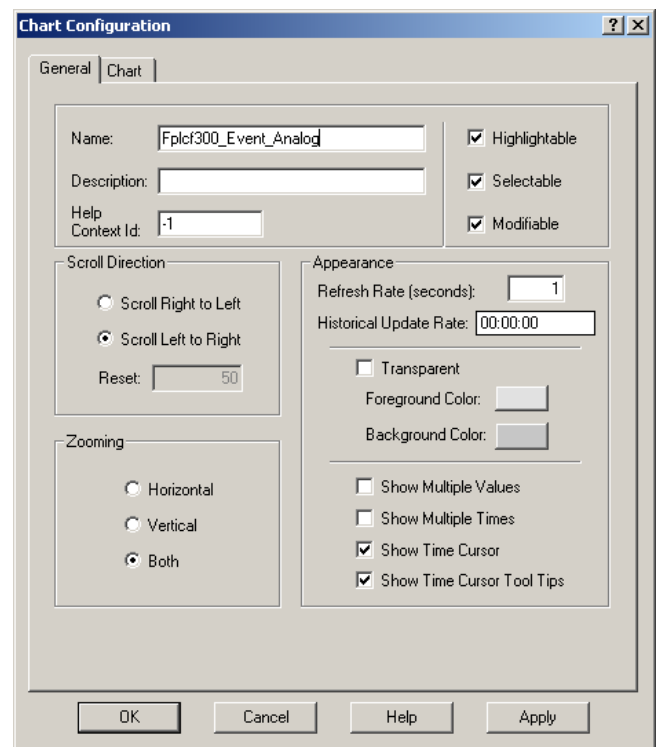


Fig 13.

- 6.4 Click the **Chart** tab. Click the “**Hist.NODE.TAG.F_CV**”.
- 6.5 From drop down box, select “**Hist.FIX.FLOW.F_CV**”.

6.6 Click the **Add Pen** icon (Fig 14).

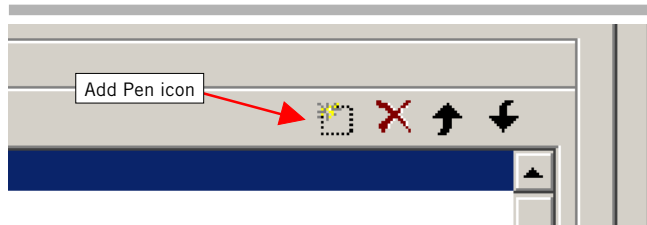


Fig 14.

6.7 Repeat step 6.5 and 6.6 until all items are selected (Fig 15).

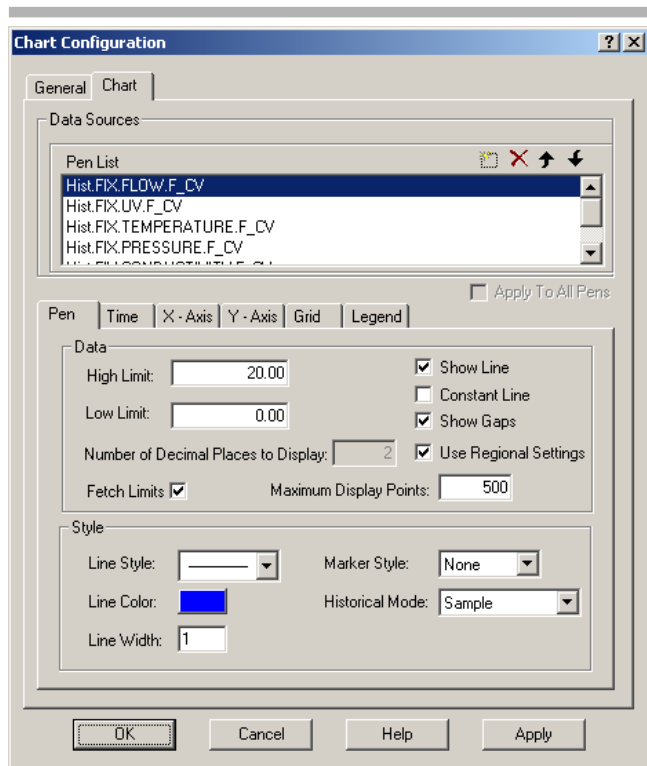


Fig 15.

6.8 Click on Time, X-Axis, etc, tab to configure the look of the chart.

6.9 Click **OK** (Fig 16).

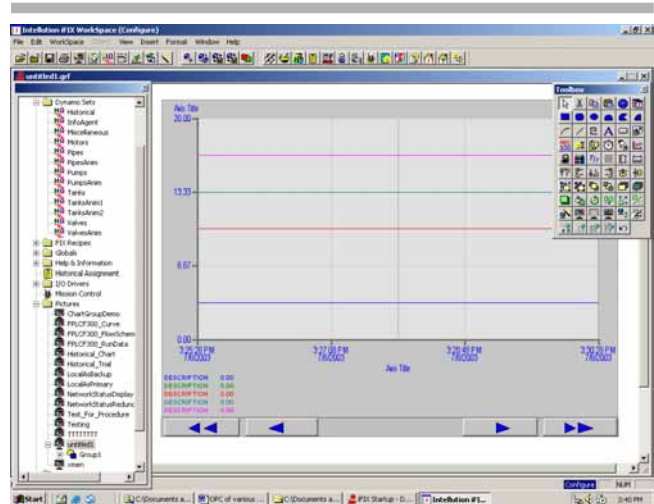


Fig 16.

6.10 To view data, hold down [Ctrl] and press [W].

For further information:

Asia Pacific Tel: +852 2811 8693 Fax: +852 2811 5251 **Australasia** Tel: +61 2 9899 0999 Fax: +61 2 9899 7511 **Austria** Tel: 01 57 606 16 19 Fax: 01 57 606 16 27 **Belgium** Tel: 0800 73 888 Fax: 03 272 1637
Canada Tel: 1 800 463 5800 Fax: 1 800 567 1008 **Central, East, South East Europe** Tel: +43 1 982 3826 Fax: +43 1 985 8327 **Denmark** Tel: 45 16 2400 Fax: 45 16 2424 **Finland & Baltics** Tel: +358 (0)9 512 3940
 Fax: +358 (0)9 512 394 39 **France** Tel: 0169 35 67 00 Fax: 0169 41 9677 **Germany** Tel: 0761 4903 401 Fax: 0761 4903 405 **Italy** Tel: 02 27322 1 Fax: 02 27302 212 **Japan** Tel: 81 3 5331 9336 Fax: 81 3 5331 9370
Latin America Tel: +55 11 3933 7300 Fax: +55 11 3933 7306 **Middle East and Africa** Tel: +30 2 10 96 00 687 Fax: +30 2 10 96 00 693 **Netherlands** Tel: 0165 580 410 Fax: 0165 580 401 **Norway** Tel: 2318 5800 Fax: 2318 6800
Portugal Tel: 21 417 7035 Fax: 21 417 3184 **Russian & other C.I.S. & N.I.S.** Tel: +7 (095) 232 0250,956 1137 Fax: +7 (095) 230 6377 **South East Asia** Tel: 60 3 8024 2080 Fax: 60 3 8024 2090 **Spain** Tel: 93 594 49 50
 Fax: 93 594 49 55 **Sweden** Tel: 018 612 19 00 Fax: 018 612 19 10 **Switzerland** Tel: 0848 8028 12 Fax: 0848 8028 13 **UK** Tel: 0800 616 928 Fax: 0800 616 927 **USA** Tel: +1 800 526 3593 Fax: +1 877 295 8102

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