

TOSHIBA

interactive intelligence

Table of Contents

Foreword	0
Part I License Agreements	9
1 Software License Agreement.....	9
2 LNS License Agreement.....	11
Part II Introduction	14
1 Copyright And Trademarks.....	14
2 About interactive intelligence.....	14
3 About This Manual.....	14
4 Online Documentation.....	15
5 Contact And Support.....	15
6 A Note About Device Drivers.....	15
Part III System Requirements	18
1 Hardware	18
2 Software	18
Part IV Installation	20
1 Before You Start.....	20
2 IMPORTANT INSTALL INFORMATION.....	20
3 Windows XP/Vista.....	20
4 Uninstalling.....	21
Part V Configuration	23
1 Setup Overview.....	23
2 Basic Setup.....	24
Where To Start	24
Access Levels	25
Global Flags	26
Misc	26
3 Driver Setup.....	28
Driver Setup Window	28
4 Comms Options.....	29
Modems	29
Network	31
5 Dial-Up Networking.....	31
Dial-Up Networking Selection	31
6 Email Settings.....	33
Email Setup	33

7	Pager & GSM Systems.....	34
	System Settings	34
8	Pager & GSM Users.....	35
	User Setup	35
9	Driver Alarm Re-transmission.....	37
	Setup	37
10	Outbound Connections.....	38
	Connection Setup	38
11	Inbound Connections.....	40
	Password List	40
Part VI Alarms		43
1	Alarm Overview.....	43
2	Alarm Panel Settings.....	44
3	Alarm History.....	47
Part VII Creating Schematics		50
1	Schematic Overview.....	50
2	Editing An Existing Schematic.....	50
3	New Schematic Example.....	51
	Creating The Bare Schematic	51
	Adding a control	53
4	Control Descriptions.....	57
	Controls Types Overview	57
	On/Off	58
	Description.....	58
	General	58
	Colours	60
	Network	61
	Control List.....	63
	Text	64
	Position & Size.....	65
	Pop-up	66
	Variable Text	67
	Description.....	67
	General	67
	Colours	69
	Network	70
	Control List.....	73
	Position & Size.....	74
	Pop-up	75
	State Picture	76
	Description.....	76
	General	76
	Network	78
	Control List.....	79
	Position	80
	Pop-up	81
	Static Picture	82

Description.....	82
General	82
Position & Size.....	83
Pop-up	84
Static Text	85
Description.....	85
General	85
Colours	86
Position & Size.....	87
Pop-up	87
Animation	88
Description.....	88
General	89
Network	90
ControlList.....	92
Position	93
Pop-up	93
Horizontal Bar	94
Description.....	94
General	95
Colours	97
Network	98
Control List.....	100
Position & Size.....	101
Pop-up	102
Vertical Bar	103
Description.....	103
General	103
Colours	105
Network.....	106
Control List.....	109
Position & Size.....	110
Pop-up	111
Button	112
Description.....	112
General	112
Colours	114
Network.....	115
Text	118
Position & Size.....	119
Jump	120
Hot Spot	122
Description.....	122
General	122
Position & Size.....	125
Combination	125
Description.....	125
General	126
Configuration.....	127
Gauge	127
Description.....	127
General	128
Network.....	129
Control List.....	131

Scale	132
Annulars.....	133
Ticks	134
Needle/Hub.....	135
Captions.....	136
Position & Size.....	136
Pop-up	137
State Text	138
Description.....	138
General.....	138
Network.....	140
Control List.....	142
Position & Size.....	143
Text	144
Colours	145
Pop-up	146
Script	147
Description.....	147
General.....	147
Network.....	148
Control List.....	150
Scrolling Chart	150
Description.....	150
General.....	151
Configuration.....	152
Settings.....	154
Position & Size.....	155
Pop-up	156
State Switch	157
Description.....	157
General.....	157
Network.....	159
Position.....	161
Values	162
Pop-up	163
Part VIII Data Logging	166
1 Data Logging Overview.....	166
2 Creating or Editing a Data Log.....	166
Part IX Graphs	170
1 Viewing A Graph.....	170
Part X Calendars	173
1 Calendar Overview.....	173
2 Local Calendars.....	173
3 Device Calendars.....	175
Part XI Scripting	179
1 Scripting Overview.....	179

2	Extra Procedures Added To VB Script.....	179
3	Editing Scripts.....	183
4	Notes About Your Scripts.....	185
5	Running Scripts.....	185
Part XII Voice System		188
1	Voice System Overview.....	188
2	Creating Control Scripts.....	188
Part XIII Plug-Ins		192
1	Enabling Plug-Ins.....	192
Part XIV Remote Connection		194
1	Remote Connection Overview.....	194
2	Connecting To a Remote Site.....	194
Part XV Bitmap Selector		197
1	How To Use the Selector.....	197
Part XVI Catalogue Viewer		200
1	Symbols And Catalogues.....	200
Part XVII Translation Editor		203
1	Using The Translation Editor.....	203
Part XVIII Backup & Restore		205
1	Backup	205
2	Restore	206
Part XIX Creating Device Drivers		208
1	What is a Device Driver.....	208
2	How To Create A Driver For interactive intelligence.....	208
Part XX Appendix A		210
1	Recommendations.....	210
	Modems	210
	Microphones	210
	Sound Cards	210
2	Voice System & NT4.....	210
3	Required Voice Files.....	210
4	Notes	211
5	Examples	211
	VBScript Examples	211

Part XXI Appendix B	214
1 Certified Driver Certificate.....	214
2 Non Certified Driver Certificate.....	214
Part XXII Appendix C	217
1 Drivers	217
2 Introduction.....	217
About this document	217
3 LonWorks Driver.....	217
Overview	217
Driver Setup	218
Network Variable Selection	218
Alarm Binding and Management	221
LNS Plug In Selection and Launch	223
4 ModBus Driver.....	224
Overview	224
Driver Setup	225
Setting up interactive intelligence Controls	226
5 SeaChange SLT Driver.....	228
Overview	228
Driver Setup	228
Setting up interactive intelligence Controls	229
Alarm Code Descriptions	229
Remote Sites	230
Status Window	231
6 Trend Driver.....	232
Overview	232
Driver Setup	232
Setting up interactive intelligence Controls	233
Terminal Mode	234
Part XXIII Appendix D	237
1 Plug-Ins	237
2 OZM 2000 License Agreement.....	237
Software License Agreement	237
3 OZM 2000 Introduction.....	239
Copyright And Trademarks	239
Optimised Zone Overview	239
4 Using OZM 2000.....	240
Creating a Zone	240
Special Days	245
Optimised Start	247
Index	249

Part



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interactive intelligence and Supplied Drivers and Plug-Ins ("Software")

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Part



2 Introduction

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2.2 About interactive intelligence

interactive intelligence is a software package that will allow you to create a visual interface to any control or monitoring system. The primary design goals were to produce a package that whilst being extremely powerful and feature full, was also extremely easy to configure and use.

The design brief also required us to make the software device independent, by this we mean that it is possible for anyone to create their own device driver to communicate with any existing or future control system.

We think that we have succeeded admirably.

The main concept behind *interactive intelligence* is for the user to create schematics (pages of graphical information representing the system to be monitored) and to retrieve information from the control system via suitable device drivers for display, logging or adjustment.

Some of the unique features of the program include:

- Easy to use drag and drop schematic creation.
- Powerful alarm management.
- Alarm retransmission via Fax, Pager, GSM telephone, Modem and Internet.
- Retrieval and setting of control system data via telephone.
- Remote connection to site via internet or modem.
- User creatable device drivers.
- Connect up to 20 different control systems simultaneously.
- Supplied with various high quality animations and bitmaps (pumps, switches etc).

Lastly may we say thank you for purchasing *interactive intelligence*.

2.3 About This Manual

interactive intelligence User Guide
August 2009
R1.77

This manual describes *interactive intelligence* operation and features at the time of publication, and

does not reflect changes made to the program after the manual was completed. Be sure to check LATENEWS.HLP file on your installation disks. This Windows Help file contains any important information about last minute changes in the program, additional features and errors or omissions in the manual.

The manual is organized into chapters, each of which describes a group of related topics, from Installation through to advanced features such as Scripting.

Typo-graphic Conventions

The following type styles are used throughout this manual to represent keys that you must press and information that you must type.

- <F1> Press the F1 function key.
- <Ctrl> + <Enter> Press the Control and Enter key together.
- <Space> Press the Space Bar.
- <Click> Click the left mouse button.
- <Double Click> Click the left mouse button twice.
- <Right Click> Click the right mouse button.
- [text] Type in the text between.
- [text] + <Enter> Type in the text then press Enter key.

2.4 Online Documentation

This manual is also available online at any time in the program, providing context sensitive help by pressing <F1>.

2.5 Contact And Support

Toshiba Carrier (UK) Limited offer training courses and support for *interactive intelligence*.

For further details telephone...

- UK: 0870 8430333
- Europe: 00 44 1752 753323

2.6 A Note About Device Drivers

As previously mentioned *interactive intelligence* has been developed in such a way that users or other third parties can create their own device drivers to communicate with almost any system. With this in mind we encourage users to either email drivers to us so that we may make them available on our web site to others, or to send us advertising information for a driver that we may incorporate into our web

site.

As standard the *interactive intelligence* CD-ROM is supplied with drivers for the following control systems:

- **Trend IQ™ Controllers**
- **Echelon™ LNS Networks**
- **Test Driver (To test without a network)**
- **Modbus**
- **SeaChange SLT**

Part



3 System Requirements

3.1 Hardware

Minimum Requirements

- Pentium P166 or greater. ***This requirement may be dependent on your chosen device driver.***
- 32 MB or more of memory. ***This requirement may be dependent on your chosen device driver.***
- Hard drive with at least 30 MB of available disk space.
- 16 Bit High Colour 800 x 600 SVGA or greater display.

Optional

- Voice/Fax Modem (for voice and fax facilities).
- Sound Card (for voice script facilities)
- Internet connection or local network.

See appendix A for important information about voice modems

3.2 Software

- Windows XP™

Or

- Windows Vista™

Or

- Windows 2003™

- Device driver to interface to required control system.

Part



4 Installation

4.1 Before You Start

Before you install *interactive intelligence*, read the License Agreement in the first chapter of this manual or help file. If you have any questions about your rights under this agreement, please contact your supplier before proceeding. If you do not accept the License Agreement, DO NOT install the software. **BY INSTALLING, COPYING, OR OTHERWISE USING THE SOFTWARE, YOU AGREE TO BE BOUND BY ALL OF THE TERMS AND CONDITIONS OF THE LICENSE AGREEMENT.**

interactive intelligence is supplied on one CD-ROM. The disk contain program files, online documentation, graphics and other tools.

The installation procedure copies the programs to your hard drive, and creates the necessary directories for all program, data and support files. Once the installation has been completed, *interactive intelligence* will run from your hard drive. The distribution disk is not required for ordinary operation.

You cannot install the program simply by copying the files from the distribution disk to your hard drive. You must use the installation program supplied to install *interactive intelligence* on your computer.

Fit the supplied security device (dongle) to the parallel printer port on you computer. If you have a printer fitted, fit the dongle between the printer cable and the computer. This device must be fitted at all times the software is running.

If you have problems with the dongle not being recognised or problems while printing, make sure that your printer port is set to STANDARD MODE in your computer BIOS.

4.2 IMPORTANT INSTALL INFORMATION

**** IMPORTANT ****

You **MUST** install the software **BEFORE** fitting the supplied network card into your PC

Once the software is installed you **MUST** shut down the PC then install the supplied network card.

Once the above tasks are completed re-start the PC then you can run interactive intelligence. The first time interactive intelligence is run it will create a database containing a list of devices on the network and will also create a set of default working schematics for those devices.

You should therefore ensure that your network is connected and all devices are switched on prior to running interactive intelligence for the first time.

4.3 Windows XP/Vista

Note:

During the installation process, *interactive intelligence* updates the Windows registry. You must be logged onto your system with a user account that includes "**administrator**" privileges in order to install.

To begin installation, insert the CD into your CD-ROM drive and then follow these steps:

- If Auto-Run is enabled on your CD-ROM drive the setup program should start automatically. If it does not do the following:
- <Click> the **Start** button on the Windows Task Bar.
- <Click> **Run**.
- In the **Open** field, type [D:\SETUP.EXE]

If your installation drive is not drive D, substitute the correct drive letter.
- <Click> the **OK** button.
- Follow the on-screen instructions.

4.4 Uninstalling

To un-install *interactive intelligence* follow these steps:

- <Click> the **Start** button on the Windows Task Bar.
- Select **Settings**.
- <Click> **Control Panel**.
- <Double Click> **Add/Remove Programs**.
- Select *interactive intelligence* from the list of programs.
- <Click> the **Add/Remove** button.

The *interactive intelligence* program, support files and icons will be removed. Any schematics, log files or other data files created by you during program use will not be removed and will need to be deleted manually.

Part



5 Configuration

5.1 Setup Overview

This chapter will take you through setting up *interactive intelligence* to meet your specific needs. Although all features are covered in the following topics, some installations may not require all functionality (Voice System, Internet connections etc:) and can therefore be skipped if required.

At all times context sensitive help is available by pressing <F1>.

Before running *interactive intelligence* make certain that the dongle is fitted to your computer as discussed in the installation chapter.

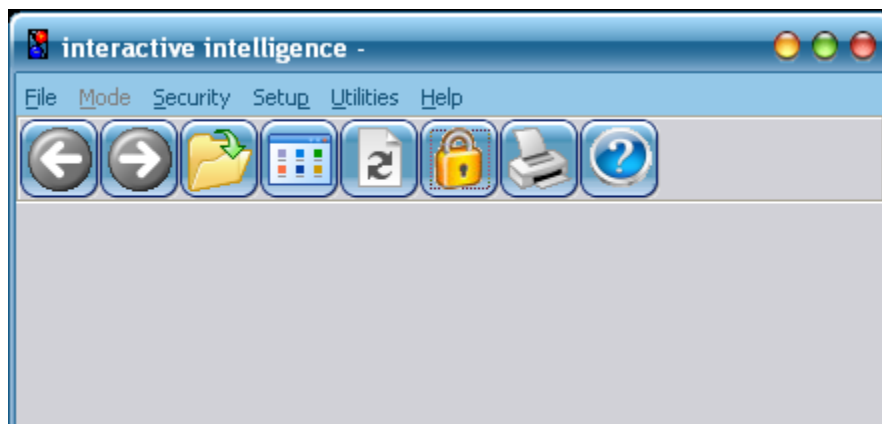
To start the program either <Double Click> the *interactive intelligence* icon that was placed on your desktop during installation or follow these steps:

- <Click> the 'Start' button on the Windows Task Bar.
- <Click> 'Programs'
- <Click> '*interactive intelligence Supervisor*'
- <Click> '*interactive intelligence*'

When the program starts for the first time you will be presented with the main program window showing only a Menu and a Button Bar as shown in figure 1.

Security (which is discussed later in basic setup) is a major feature *interactive intelligence* and as such all setup options are unavailable until you have logged on with a valid password. As this is the first time that the software has been run, a default password (9999) has to be used to gain access.

Figure 1



To proceed, <Click> the Log On button or press <Ctrl> + <L>. This will cause the password entry screen to appear as in figure 2.



Figure 2

Enter the default password which is "9999", either by using the numeric keys on your keyboard or by <Clicking> on the '9' button in the password entry window and then pressing <Enter>. If you make a mistake, <Click> the 'Clear' button or press the <Delete> key on your keyboard. <Clicking> the 'Cancel' button or pressing the <Esc> key on your keyboard aborts this Log-On attempt.

A successful Log-On will enable various extra menu items depending on password (Pin Level). The default password automatically gives you engineer access, and therefore enables all menu items.

5.2 Basic Setup

5.2.1 Where To Start

Nearly all items that can be configured are accessed via the setup menu option. Use your mouse to select 'Setup' then 'Basic Configuration' as shown in figure 3.

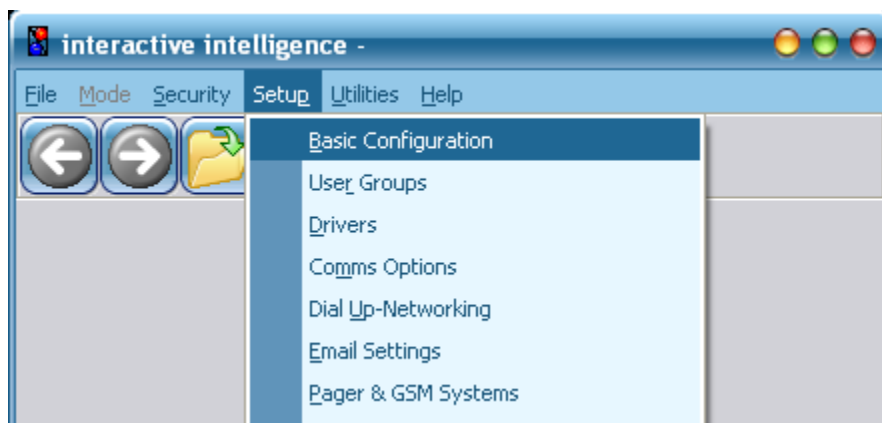
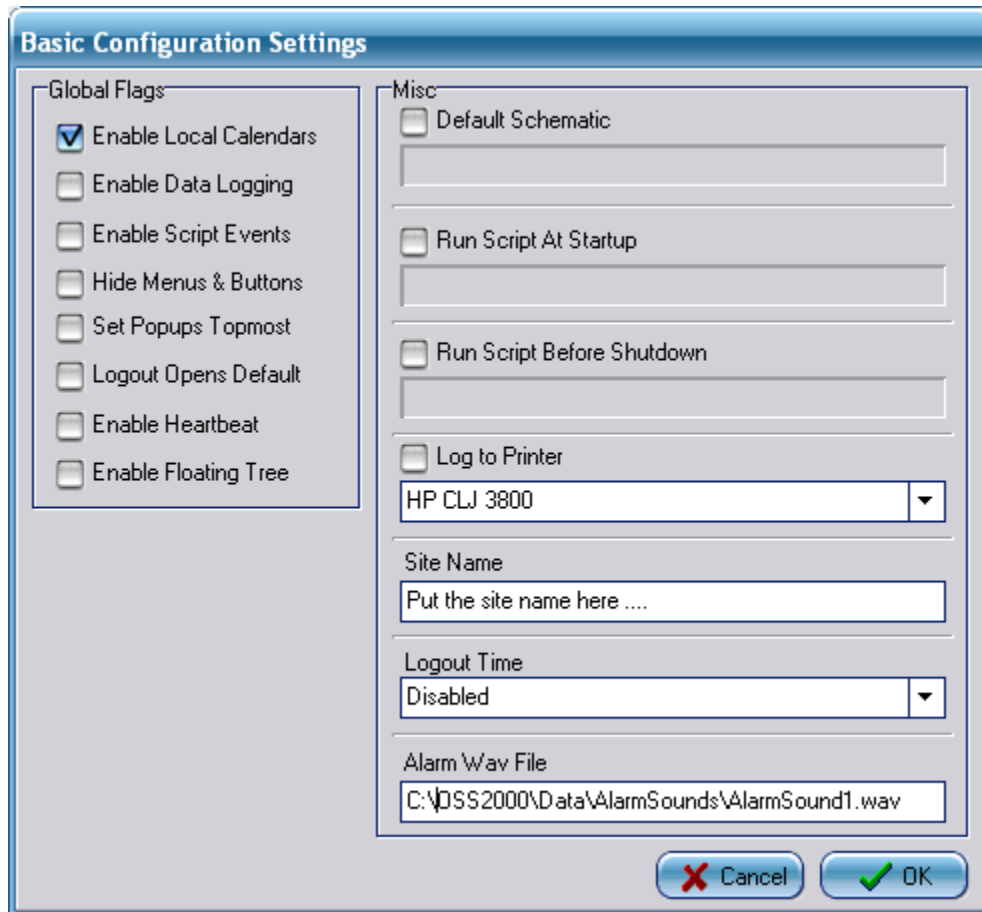


Figure 3

This will display the Window as shown in the following topic.

5.2.2 Access Levels

**Figure 4**

As described in a moment, a user is assigned an access level from 0 to 100 when their password is allocated. These numbers allow you to control access to controls on schematics, but also allow you to control who may make changes to various *interactive intelligence* settings.

The 5 access levels that need to be entered are shown in figure 4 and enable the functionality as described below.

- **Shut Down**

Any user with this level or above can shut down the program.

- **Alarms**

Any user with this level or above can acknowledge alarms.

- **Admin**

Any user with this level or above can add, modify or delete other users on the system, but only up to and including their own access level.

- **Editing**

Any user with this level can create and modify schematics and perform the same functions as admin level.

- **Engineer**

Any user with this level has complete access to functions and configuration of the system.

To create or modify users and assign them access levels, select '*Security*' then '*User Administration*'. This allows you to enter user names, company information and a suitable access level.

5.2.3 Global Flags

Global Flags, not surprisingly, are used to globally enable a particular background function of *interactive intelligence*. The exact purpose of each of these is described here.

- **Enable Local Calendars**

This option lets local calendars fire their events at the times specified in the calendar. Events and Calendars are discussed in detail later, suffice it to say that if this option is un-checked no calendar events will take place.

- **Enable Data Logging**

This option if un-checked, stops all background data logging from taking place.

- **Enable Script Events**

This option, again if un-checked, stops all background script events from taking place.

- **Hide Menus & Buttons**

If this option is checked all menus and buttons will be hidden unless someone is logged on at engineer level.

- **Set Pop-up's Topmost**

If this option is checked all pop-up schematics will always stay on top of interactive intelligence.

- **Logout Opens Default**

If this option is checked the default schematic will be displayed when the system logs-out.

5.2.4 Misc

- **Default Schematic**

This option, when checked, displays a selection box from which a default schematic can be chosen. When un-checked the default schematic is cleared.

The default schematic is displayed every time that *interactive intelligence* is started, and also when the '*Default*' button is <Clicked> on the main button bar.

- **Run Script At Startup**

If this check box is ticked, a user defined VB script will be run when the program is started. VB scripting is discussed in the "Scripting" chapter.

- **Log To Printer**

If this check box is ticked, all activity (log-on, editing, remote connections etc) are sent to the selected printer.

- **Site Name**

Enter a description in this field that describes the site that the software is installed at (i.e.: Acme Trading, Process Site).

- **Logout Time**

After what period of inactivity a user will be logged off.

- **Run Script Before Shutdown**

If this check box is ticked, a user defined VB script will be run before interactive intelligence is shutdown. VB scripting is discussed in the "Scripting" chapter.

- **Alarm Wav File**

For PC's fitted with a sound card you can select a WAV file to be played for the alarm sound instead of the normal PC speaker siren.

5.3 Driver Setup

5.3.1 Driver Setup Window

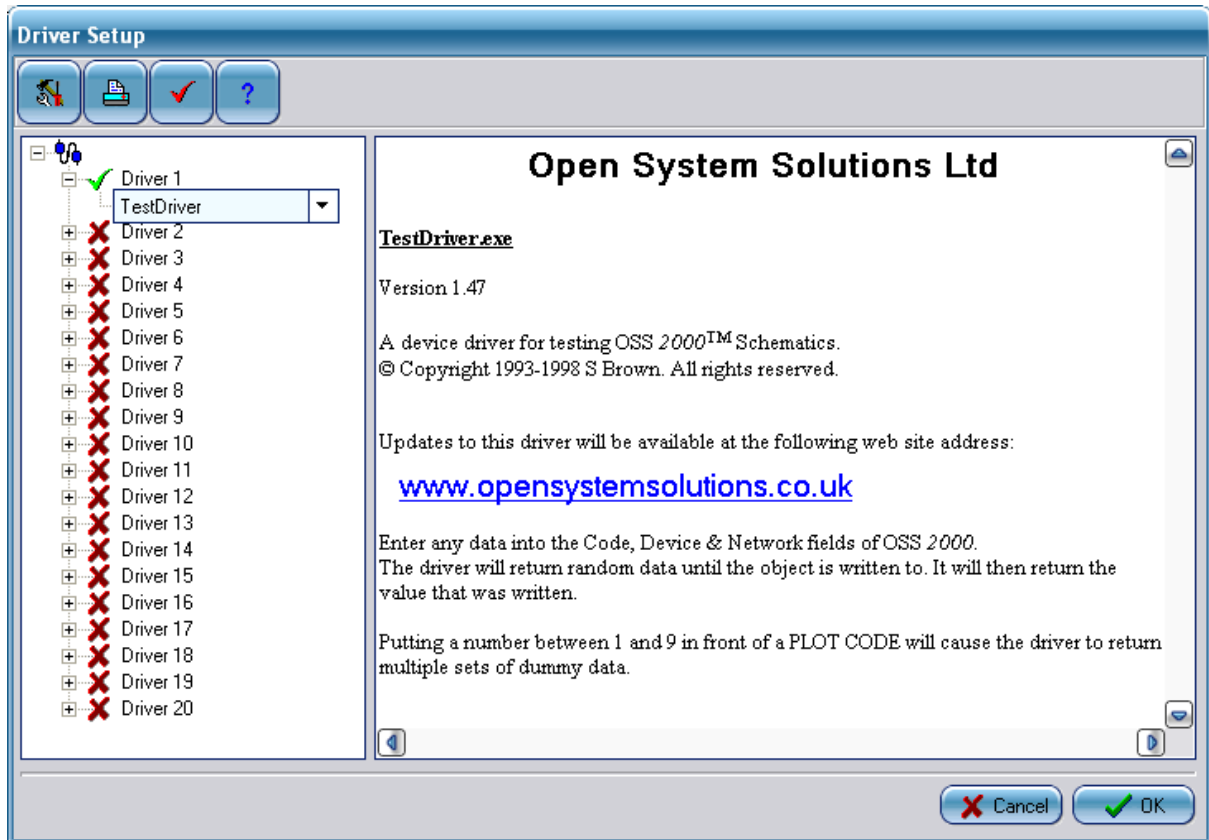


Figure 5

(For more detail see *Driver Specific Information*)

On the main menu use your mouse to select 'Setup' then 'Driver Setup'. This will display the window shown in figure 5.

The window contains a list of drivers installed on the computer, a drop down combo box to select which driver port to configure, a text window that displays information about the driver and a driver setup button.

interactive intelligence may be configured to run any combination of up to 4 drivers at any time. When you select the driver port that you wish to configure from the drop down combo box, the driver list above it will highlight which type of driver is currently attached. To attach a different driver to the selected port, <Click> on the required driver from the list. If you wish to have no driver assigned, select 'NotUsed'.

Once you have connected a driver to the required port (Driver 1 - 4), you should <Click> the 'Driver Setup' button. This will instruct the selected driver to open its own configuration window. Details of how to setup the individual drivers must be supplied by the author/supplier of the driver.

Once all changes have been made <Click> 'OK' to save the changes or <Click> 'Cancel' to discard changes (any changes made via the drivers own setup window will not be discarded as we have no

advance knowledge of what the driver is or what it does).

By default, when *interactive intelligence* is first installed, 'TestDriver' is setup on slot 1. This driver is used to test schematics and just returns random dummy data.

The 'Print' option will print the driver information to the Windows default printer. This information tells you about the codes used by this driver and any other driver specific information.

The 'Certified' button when <Clicked> will display a certificate that shows if the selected driver has been certified by Open System Solutions for correct *interactive intelligence* to Driver interface operation. For further information and example certificates see appendix B.

5.4 Comms Options

5.4.1 Modems

On the main menu use your mouse to select 'Setup' then 'Comms Options'. This will display the window shown in figure 6.

Up to two modems may be used by *interactive intelligence*. Modems are installed and setup in Windows as per the suppliers instructions. Once you have at least one modem installed and configured properly, it can be made available for use by *interactive intelligence*.

<Clicking> on the 'Modem 1' or 'Modem 2' check box will display a list of modems available for use. Selecting the required modem will display its name next to the check box. The same modem can not be used for both slots.

Once a modem is selected, the options for that modem become enabled and when ticked have the following meanings:

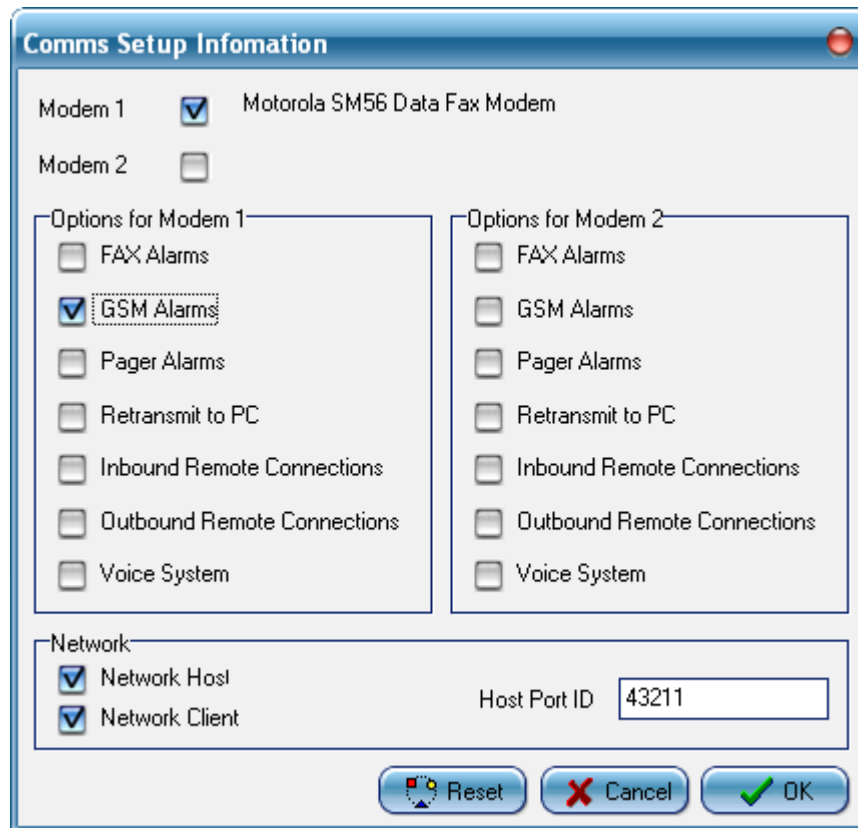


Figure 6

- **FAX Alarms**

Allow this modem to retransmit alarms to FAX machines. (Note: the selected modem must have FAX capabilities).

- **GSM Alarms**

Allow this modem to retransmit alarms to GSM capable telephones or other GSM services.

- **Pager Alarms**

Allow this modem to retransmit alarms to TAP compliant pager systems.

- **Retransmit to PC**

Allow this modem to retransmit alarms to another PC running *interactive intelligence*.

- **Inbound Remote Connections**

Allow this modem to accept incoming connections from another PC running *interactive intelligence*.

- **Outbound Remote Connections**

Allow this modem to initiate outgoing connections to another PC running *interactive intelligence*.

- **Voice System**

Allow this modem to act as an answering machine for the system engineer and to also allow telephone input and data retrieval to and from any connected control system. (Note: the selected modem must have VOICE capabilities).

Two important points to take note of are:

- i) Each facility can only be enabled for one modem (ie: if Modem 1 has '*Fax Alarms*' enabled Modem 2 can not have '*Fax Alarms*' enabled).
- ii) '*Inbound Remote Connections*' and '*Voice System*' can not be enabled on the same modem at the same time.

5.4.2 Network

The network section in the '*Comms Options*' window has two properties that can be enabled. These items have the following meanings:

- **Network Host**

Allow this machine to accept inbound connections from another PC running *interactive intelligence* over an internet connection or local TCP/IP network.

- **Network Client**

Allow this machine to make an outbound connection to another PC running *interactive intelligence* over an internet connection or local TCP/IP network.

- **Host Port ID**

This field should only be changed if the default conflicts with other software on your network. This is unlikely to happen because we have chosen an unusual port number which should not conflict with systems running on most networked PC's. If you are unsure, speak to your network administrator.

Should you change this field by accident, it can be restored to its default value by <Clicking> the '*Reset*' button.

5.5 Dial-Up Networking

5.5.1 Dial-Up Networking Selection

If you are to use the internet for any outbound connections to another PC running *interactive intelligence*, and you use Microsofts™ Dial-Up Networking to connect to your service provider, you must inform *interactive intelligence* which connection to use.

On the main menu use your mouse to select '*Setup*' then '*Dial-Up Networking*'. This will display the window as shown in figure 7. This window is where you must select the connection to use and enter login details.

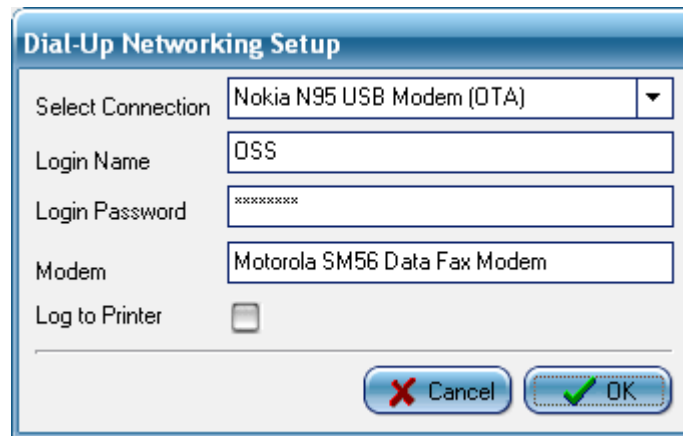


Figure 7

From the drop down box, select the connection that wish to use to connect to the internet, then enter your login name and password in the relevant edit box's. If you need more information on creating Dial-Up networking connections see the Windows help or speak to your internet service provider.

Due to an omission in the Windows API, we can not automatically determine which modem is used by the Dial-Up connection. This information is needed by *interactive intelligence* to prevent conflicts between events which will share the same modem.

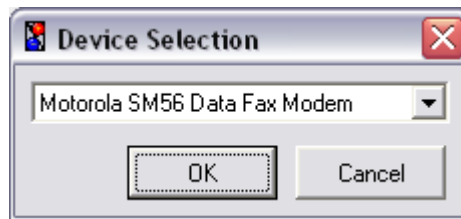


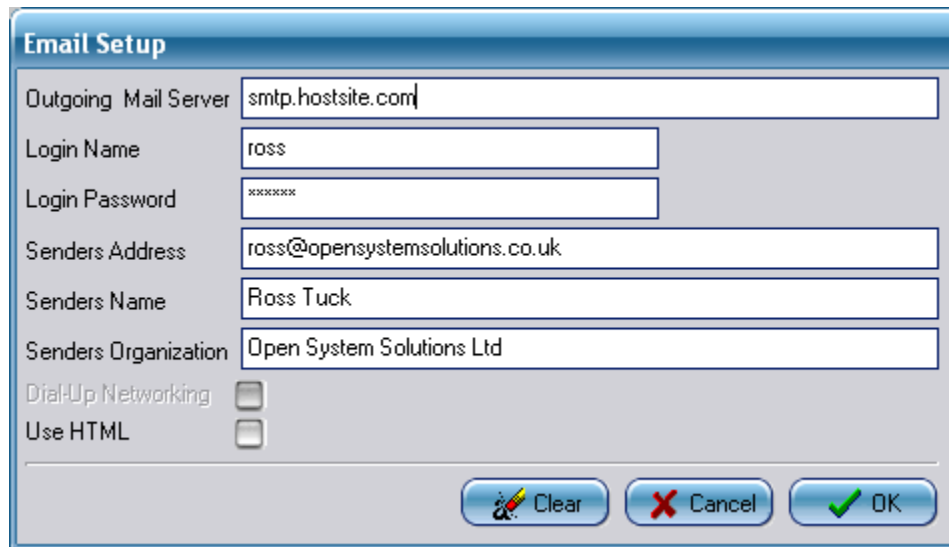
Figure 8

<Clicking> on the Modem field will display the window shown in figure 8. Use the drop down list to select the modem that is used by your Dial-Up connection.

Failure to select the correct modem will cause major operational problems.

5.6 Email Settings

5.6.1 Email Setup



Email Setup

Outgoing Mail Server: smtp.hostsite.com

Login Name: ross

Login Password: *****

Senders Address: ross@opensystemsolutions.co.uk

Senders Name: Ross Tuck

Senders Organization: Open System Solutions Ltd

Dial-Up Networking:

Use HTML:

Clear Cancel OK

Figure 9

Alarm panels, which are discussed later, can be enabled to retransmit alarms via various mediums. One of these options is to send alarms as emails.

All information about your email service is entered in the window as shown in figure 9. To access this window, select 'Setup' then 'Email Settings' from the main menu. Enter all your email details into the provided fields. If you are unsure about what to enter, contact your internet service provider.

The Dial-Up Networking checkbox, when ticked, tells *interactive intelligence* to connect to your service using the Dial-Up connection as selected in the chapter "Dial-Up Networking". If this box is un-checked, the program will attempt to connect to the email service via your local network.

Use HTML, when ticked will send emails in HTML format.

5.7 Pager & GSM Systems

5.7.1 System Settings

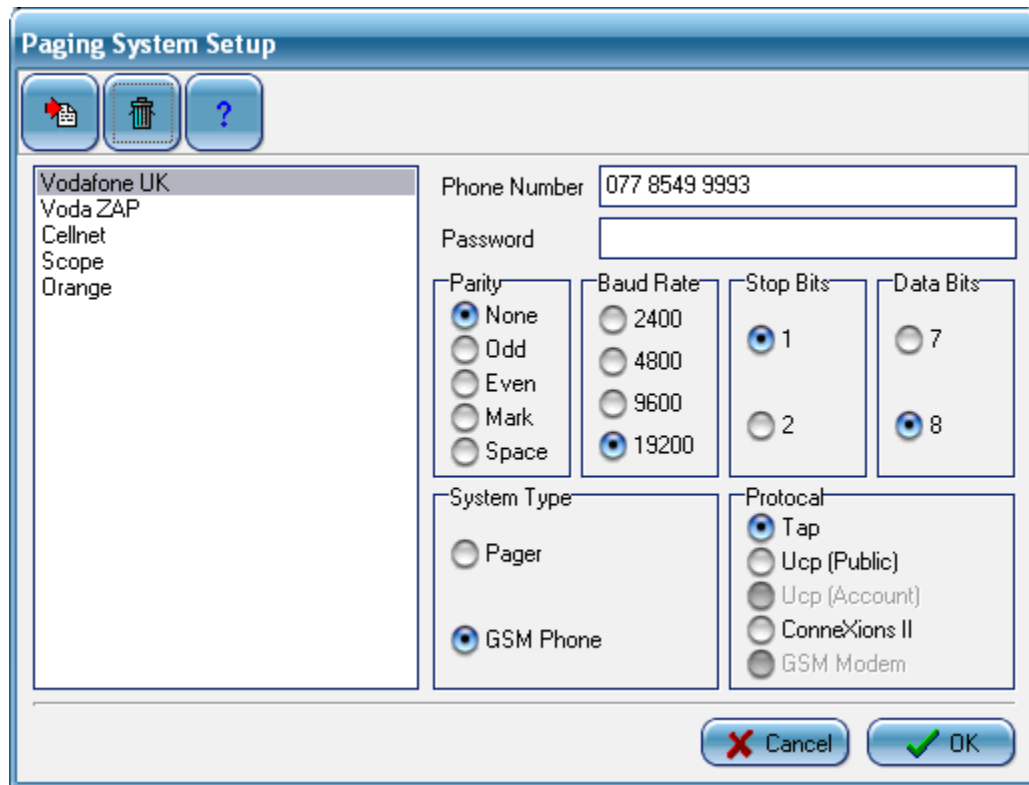


Figure 10

interactive intelligence can retransmit alarms to GSM telephone systems or to TAP compliant Paging systems.

In order to configure these systems, from the main menu select 'Setup' then 'Pager & GSM System'. This will display the window as shown in figure 10.

You will see three systems already configured with the correct parameters for use in the UK:

Vodafone UK
Cellnet
Voda ZAP

These three may have their settings altered, but may not be deleted.

To edit a system, highlight it in the list box with the mouse, then change the settings as required.

To add a new system, <Click> the 'Add' button, a new window will be displayed into which you should enter the name of the system as shown below.

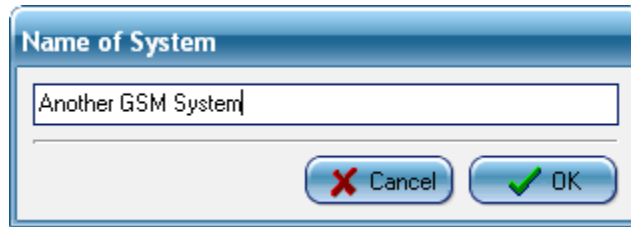


Figure 11

<Clicking> on 'OK' will cause the edit window to disappear, you can now adjust the settings for this new system. For details on what your settings should be, contact your service provider. Set the System type by selecting the appropriate check box.

To delete an existing system, highlight it in the list box with the mouse, then <Click> the 'Delete' button.

You will note that a password field is provided. Currently most systems do not require a password but the option is supplied in case service providers change their requirements in the future.

5.8 Pager & GSM Users

5.8.1 User Setup

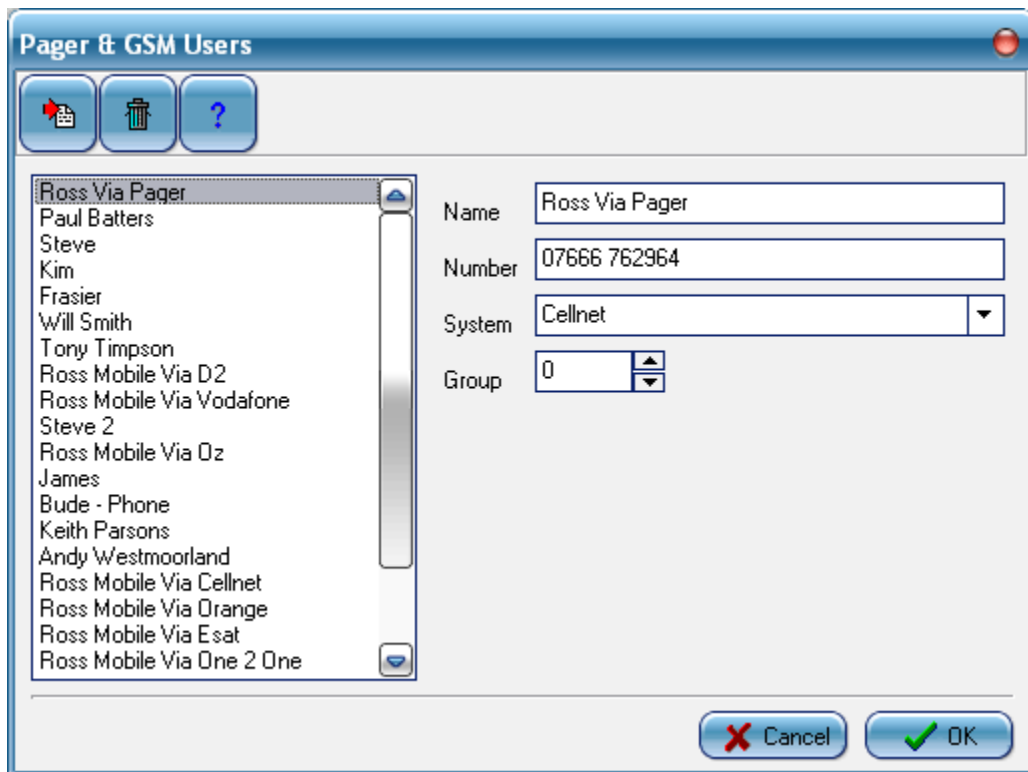


Figure 12

In order to configure users, to whom alarms can be sent via Pagers or GSM telephones, from the main menu select 'Setup' then 'Pager & GSM Users'. This will display the window as shown in figure 12.

The 'Number' field is used to enter the number of the users telephone or pager.

The drop down list box lets you choose the system via which to send the message. The setup of these systems is described in the chapter "Pager & GSM Systems".

To edit a user, highlight them in the list box with the mouse, then change the settings as required.

To add a new user, <Click> the 'Add' button, a new window will be displayed into which you should enter the name of the user as shown below.

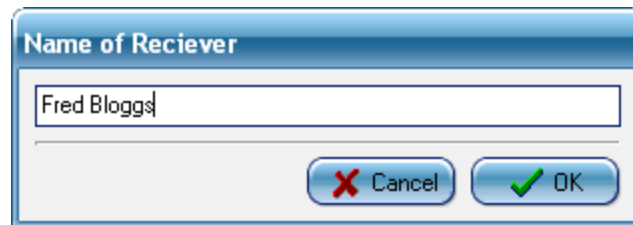


Figure 13

<Clicking> on 'OK' will cause the edit window to disappear, you can now adjust the settings for this new user.

To delete an existing user, highlight them in the list box with the mouse, then <Click> the 'Delete' button.

- **Group**

Setting this number to anything other than 0 will make the user part of a group. When an alarm is sent to this user it will also be sent to all other members in the same numbered group.

5.9 Driver Alarm Re-transmission

5.9.1 Setup

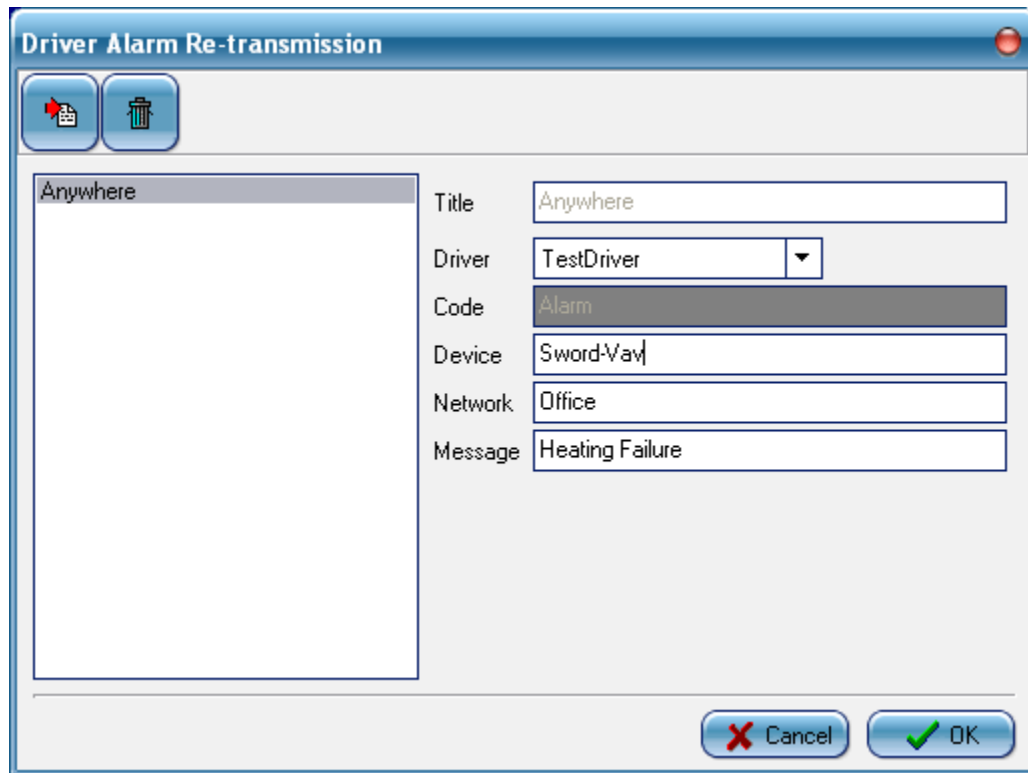


Figure 13a

**** NOTE ** - Not all drivers support this functionality**

This option allows you to re-transmit alarms via a driver to another copy of interactive intelligence.

- **Title**

Assign a title for this destination (this is then selected from an alarm panel).

- **Driver**

Select the driver via which to re-transmit the alarms.

- **Code**

Not user adjustable.

- **Device**

The remote device to re-transmit alarms to - consult device driver documentation for further information.

- **Network**

The remote network to re-transmit alarms to - consult device driver documentation for further information.

- **Message**

The text entered here will be added to the alarm text that is re-transmitted.

5.10 Outbound Connections

5.10.1 Connection Setup

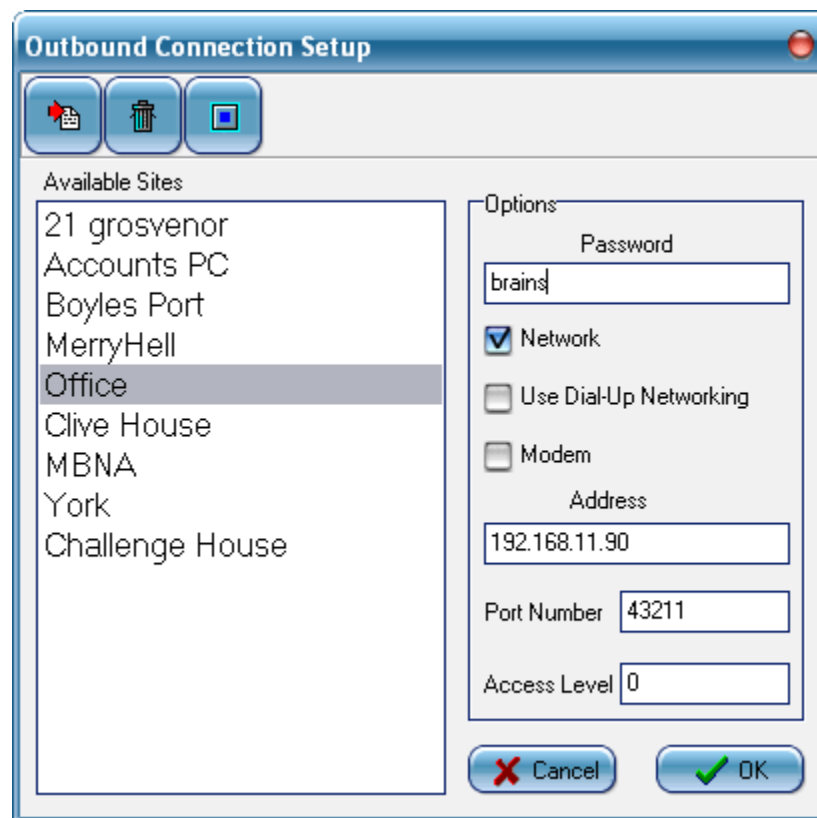


Figure 14

interactive intelligence has powerful remote connection capabilities. It can connect to another PC via a local TCP/IP network, via the internet and via a modem. Once connected you can work as if you were sat in front of the remote machine. This facility is not only useful for monitoring remote sites, but also for configuring and updating remote schematics.

To configure connections for remote sites select '*Setup*' then '*Outbound Connections*' from the main menu. This will display the windows as shown in figure 14.

To edit a site, highlight it in the list box with the mouse, then change the settings as required.

To add a new site, <Click> the '*Add*' button, a new window will be displayed into which you should

enter the name of the site as shown below.

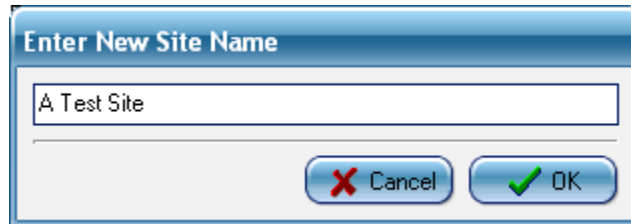


Figure 15

<Clicking> on 'OK' will cause the edit window to disappear, you can now adjust the settings for this new site.

To delete an existing site, highlight it in the list box with the mouse, then <Click> the 'Delete' button.

Descriptions of the configurable properties are as follow:

- **Password**

Enter the password that has been set-up for you at the remote site. If this password can not be found in the list at the remote site, the connection will be refused.

The password can consist of any alpha-numeric characters including spaces, and is not case sensitive.

- **Network**

If the connection is to be made via a local network or via the internet, tick this option.

- **Use Dial-Up Networking**

If 'Network' is ticked, and the connection is to be established to the internet via Dial-Up Networking, then tick this option.

- **Modem**

If the connection is to be established directly to the remote site using the modem, then check this box. This will un-check the 'Networking' and 'Use Dial-Up Networking' check box's.

- **Phone Number / Address**

If the connection type is 'Modem', enter the phone number of the remote site into this field.

If the connection type is 'Network', enter the TCP/IP address of the remote site into this field, either as a named connection or as a domain number as in the following examples:

```
ControlServer1  
163.168.17.21
```

If you do not understand this type of addressing, speak to your network administrator or your internet service provider.

- **Port Number**

Only available if the connection type is 'Network'.

This field should not be changed unless the remote site has had its matching host port changed. This is unlikely to happen because we have chosen an unusual port number which should not conflict with systems running on most networked PC's. Again, if you are unsure, speak to your network administrator.

Should you change this field by accident, it can be restored to its default value by <Clicking> the 'Reset' button.

- **Access Level**

Enter into this field, the access level that a user must be logged in at, to be able to use this connection. This access level is also used to determine what functions the user will have access to at the remote site.

5.11 Inbound Connections

5.11.1 Password List

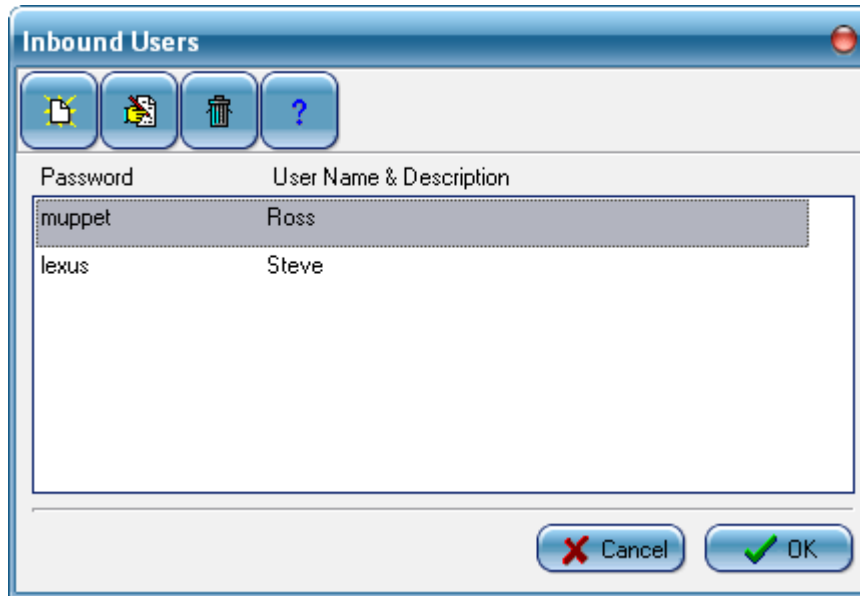
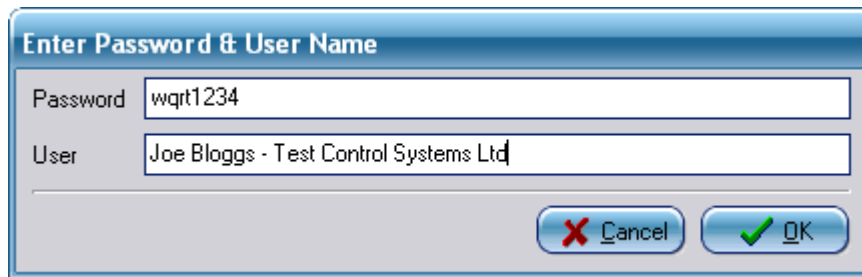


Figure 16

If you have configured *interactive intelligence* to accept incoming connections, you must enter passwords for all users that you wish to have access.

To configure passwords for remote users, select 'Setup' then 'Inbound Connections' from the main menu. This will display the windows as shown in figure 16.

To add a new user, <Click> the 'Add' button, a new window will be displayed into which you should enter a password and the name of the user as shown below.



The image shows a standard Windows-style dialog box titled "Enter Password & User Name". It features two text input fields. The first field, labeled "Password", contains the text "wqrt1234". The second field, labeled "User", contains the text "Joe Bloggs - Test Control Systems Ltd". At the bottom right of the dialog, there are two buttons: "Cancel" with a red "X" icon and "OK" with a green checkmark icon.

Figure 17

To edit a users details, highlight them in the list box with the mouse, then <Click> the '*Edit*' button. The edit window will be displayed to allow you to edit the users details as in figure 17.

To delete an existing user, highlight them in the list box with the mouse, then <Click> the '*Delete*' button.

Part



6 Alarms

6.1 Alarm Overview

Alarm_Text	Date	Time
Havant - Unit 4 - LAN communication abnormality - AI central control network - indoor unit missing	28/07/2006	14:49:16
Havant - Unit 6 - LAN communication abnormality - AI central control network - indoor unit missing	28/07/2006	14:49:18
Havant - Unit 7 - LAN communication abnormality - AI central control network - indoor unit missing	28/07/2006	14:49:20
Havant - Unit 4 - Cleared	28/07/2006	14:49:25
Havant - Unit 6 - Cleared	28/07/2006	14:49:27
Havant - Unit 7 - Cleared	28/07/2006	14:49:28
Havant - Unit 6 - LAN communication abnormality - AI central control network - indoor unit missing	28/07/2006	14:53:06
Havant - Unit 7 - LAN communication abnormality - AI central control network - indoor unit missing	28/07/2006	14:53:08
Havant - Unit 4 - LAN communication abnormality - AI central control network - indoor unit missing	28/07/2006	14:54:18
Havant - Unit 6 - LAN communication abnormality - AI central control network - indoor unit missing	28/07/2006	14:54:21
Havant - Unit 7 - LAN communication abnormality - AI central control network - indoor unit missing	28/07/2006	14:54:22
Havant - Unit 4 - Cleared	28/07/2006	14:54:27
Havant - Unit 6 - Cleared	28/07/2006	14:54:29
Havant - Unit 7 - Cleared	28/07/2006	14:54:31

Figure 18

interactive intelligence manages alarms via user configurable alarm panels. There is always one panel available, known as the "Default Alarm Panel" and is pictured in figure 18.

Any alarms not filtered into user configured panels will end up in this panel. This ensures that no alarms are missed due to any errors or omissions when you configure your own panels.

Panels display the Alarm Text received from device drivers along with the date and time that the alarm occurred. A user who has the correct access level can <Click> the 'Clear' or 'Clear All' buttons to acknowledge an individual or all alarms respectively.

When an alarm is received, the title border will flash and, if enabled for the respective panel, a siren will sound. This siren can be muted by <Clicking> the 'Mute' button. To the left of the alarm panel title is a counter that displays how many un-acknowledged alarms that the panel contains.

When an alarm is acknowledged, it is removed from the panel and stored in a searchable database that will be discussed later under "Alarm History".

To change the settings for an alarm panel <Click> on the 'Setup' button (you must be logged on at the correct level). The available settings are discussed in the next chapter.

The 'Minimize' button, when <Clicked>, minimizes the panel to a small window at the bottom of the screen.

To remove an alarm panel, <Click> on the 'Delete' button. (Note: the default panel can not be deleted).

The alarm panels can be re-sized and re-positioned and will remember their settings.

6.2 Alarm Panel Settings

To create a new alarm panel, select '*Setup*' then '*New Alarm Panel*' from the main menu. This will display the windows as shown in figure 19. When all of the options are set, <Click> on '*OK*' and the new panel will be created. To change a panels settings later, open the panel and <Click> on the '*Setup*' button.

The options available for configuration are described in the following list:

- **Alarm Panel Title**

Enter the title for this alarm panel. This text will be displayed in the title bar of the alarm panel at all times.

- **Alarm Search String**

The text entered in this field is used to filter alarms for this panel. Basically, the incoming alarm text must contain this string in order to be accepted by this panel. Any alarms that are rejected by all user panels will be added to the default alarm panel. Options that control how the search is conducted are discussed later in this topic.

- **Alarm Fax Number**

If you wish alarms to be re-transmitted by this panel to a remote Fax Machine, enter the telephone number of the Fax Machine here.

Figure 19

- **Alarm Email Address**

If you wish alarms to be re-transmitted by this panel as an email, enter the receivers email address here. Email setup is described in the "Configuration" chapter. Alarms can be Carbon Copied to multiple users by adding further email address's seperated by commas.

- **Remote Site**

If you wish alarms to be re-transmitted by this panel to another PC running *interactive intelligence*, select the remote site from the drop down list box. Remote sites are described in the "Configuration" chapter.

- **GSM Phone User**

If you wish alarms to be re-transmitted by this panel to a person with a GSM capable telephone, select the person from the drop down list box. GSM user setup is described in the "Configuration" chapter. If the user is part of a group the alarm will be sent to all users in that group.

- **Pager User**

If you wish alarms to be re-transmitted by this panel to a person with a TAP compliant pager, select the person from the drop down list box. Pager user setup is described in the "Configuration" chapter. If the user is part of a group the alarm will be sent to all users in that group.

- **Driver Destination**

If you have configured destinations in "Driver Alarm Re-transmission" you can select here to which destination if any that this panel is to re-transmit its alarms.

- **Selected Printer**

If you wish alarms to be printed when received, select the required printer from the drop down list box. The printers listed here have to be setup from your Windows Control Panel. For further information on installing printers in Windows, see your Windows help or consult your printers documentation.

- **Script Function**

<Clicking> This edit box will pop-up a list of user written VB Script functions of which one may be chosen. Any alarms received by this panel will be passed to this function. If this box is cleared, no script will be called. VB scripting is discussed in the "Scripting" chapter.

- **Alarm Panel Colour**

<Clicking> on the coloured button will pop up a dialog box allowing you to select a new colour. This colour is used for the background of the alarm panel.

- **Search Options**

This radio-button group allows you to decide how the panel should search the incoming alarms for the search string. One of the following can be selected.

Start of String

The search string must be at the start of the incoming alarm text.

End of String

The search string must be at the end of the incoming alarm text.

Is in String

The search string can be anywhere in the incoming alarm text.

Exact Match

The whole alarm text must match the search string exactly.

- **Misc Options**

Case Sensitive

This check box determines whether the comparison between the alarm text and the search string is case sensitive or not.

Print Enable

If checked, allows this panel to send alarms to the selected printer.

Audio On

If checked, starts a siren sound when the panel receives an alarm.

Script Enable

If checked, the alarm, date and time will be passed to the selected VB Script.

Popup Enable

If checked, panel will popup when an alarm is received.

Auto Ack Enable

If checked, alarms will be automatically removed from the panel and stored in the database.

• **Re-Transmit Options**

These option enable each of the respective re-transmit features for this alarm panel. In order for a facility to be available, it must have been enabled in the Comms Options section as discussed in the "Configuration" chapter.

6.3 Alarm History

When alarms are acknowledged in the alarm panels, they are stored for future reference and reporting.

On the main menu use your mouse to select '*Utilities*' then '*Alarms*'. This will display the window shown in figure 20.

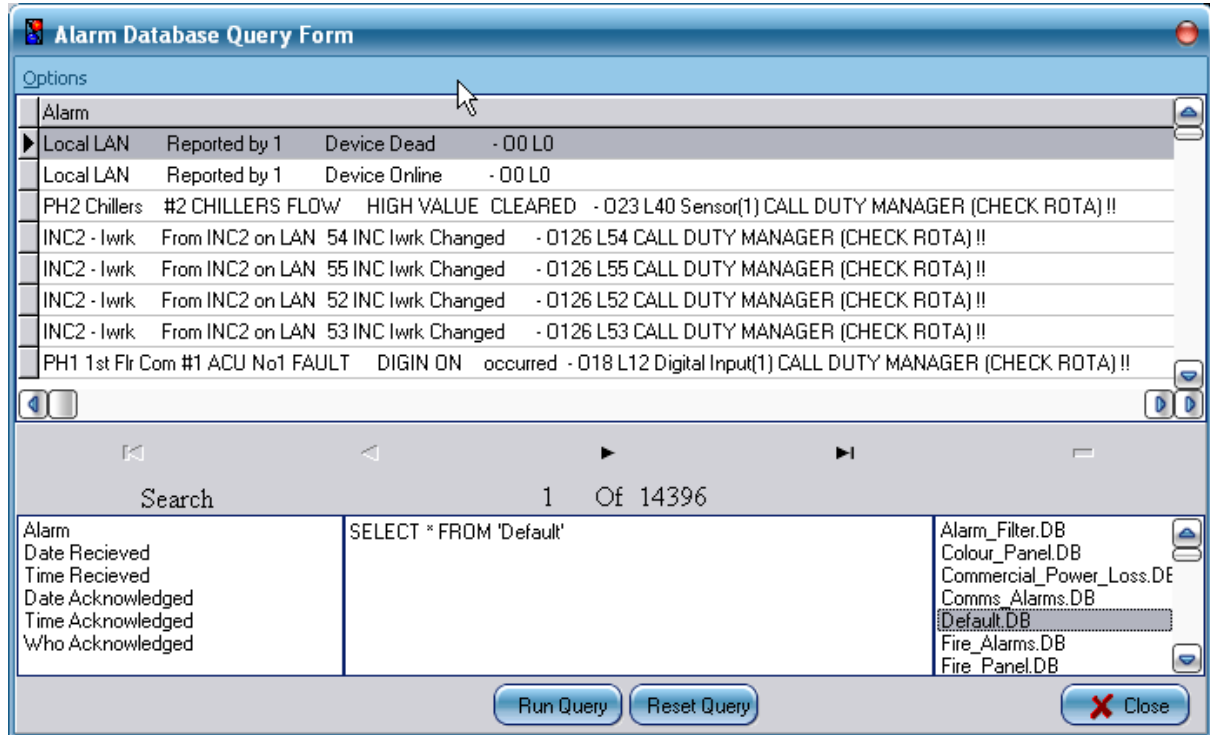


Figure 20

The right panel shows a list of alarm databases. When one of these is selected, the top panel displays

all acknowledged alarms received by this database. The alarm list can be scrolled across to show the alarm date and time, and also who acknowledged it.

Selecting options from the left panel allow an SQL query to be built which will filter the alarms displayed.

In the '*Options*' menu are facilities to print a report showing alarm information and the option to delete the contents of the selected database.

Part



7 Creating Schematics

7.1 Schematic Overview

- What is a schematic ?

A schematic is a way to present information from a control system in an easy to understand human readable format. It may consist of buttons and switches to allow values in a system to be modified and dynamic text, animations and other graphics which can show the current status of the control system.

Schematics can be organized into an easy to follow tree or directory structure. This allows information for different sites and their subsystems to be segregated into manageable blocks.

- How is a schematic created ?

A set of controls are made available by the software which you can place onto a schematic. Properties of these controls are edited to configure such things as colour, text, picture and what information to retrieve from the control system.

The following topics give an example of how to create a new schematic, add controls to it and adapt it to suit your needs. These topics are followed by a chapter that describes all of the controls available and their properties in detail.

7.2 Editing An Existing Schematic.

To edit an existing schematic, select 'Mode' then 'Edit' from the main menu. This will put you into edit mode (providing you are logged on at a high enough security level). Then follow the same procedures for editing as covered in the following chapters.

The screenshot shows a 'Global Schematic Modification' dialog box with the following fields and options:

- Device:** From: Boiler1, To: Boiler7
- Device Options:** Match (selected), All
- Network:** From: |, To:
- Network Options:** Match, All (selected)
- Jump References:** From: , To:
- Jump Method:** Jump (selected), Popup, Change if in path (checkbox)
- Code:** From: , To:
- Change Driver:** From: dropdown, To: dropdown
- Change in:** Current Schematic (selected), Schematics on Disk, Selected Controls
- Phone Number:** From: , To:
- Password:** From: , To:
- Directory:** Groups, Include subdirectories (checkbox)

Buttons: Cancel, OK

Figure 20a

From the 'Edit', 'Global Changes' menu options you can access the above window:

This dialog allows you to change selected or global codes in a schematic or group of schematics. This is useful when copying a job from one site to another or if a device name has been changed.

7.3 New Schematic Example

7.3.1 Creating The Bare Schematic

Prior to creating a new schematic, make sure that you are logged on with an access level that allows schematic editing.

From the main menu select 'File', 'New', 'Schematic'.

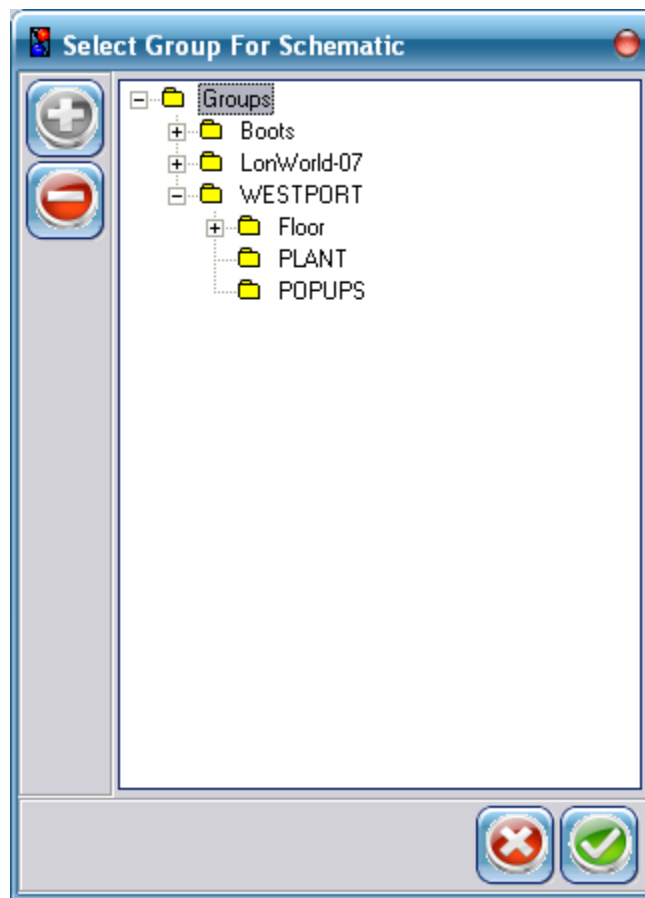


Figure 21

Expand the tree as required to select the group under which the new schematic will be located. If the group that you wish to use has not yet been created, highlight the group under which you wish to add your new group. Then <Right Click> and select 'Add Group' from the pop-up menu. You can then enter a name for the new group.

Once the required group has been selected, <Click> the 'OK' button. You will now be presented with an edit box into which you can type the name of the new schematic. This name is used as the title displayed to users and to identify it throughout the system and should therefore be as descriptive as possible. For this example type [Fancoil Unit No 27] (excluding the square brackets) then press the '

OK button.

interactive intelligence will now be in edit mode with the new blank schematic opened.

Before placing any controls we should set up the basic schematic properties. To do this <Double Click> in the blank window area, this will display the window as shown in figure 22.

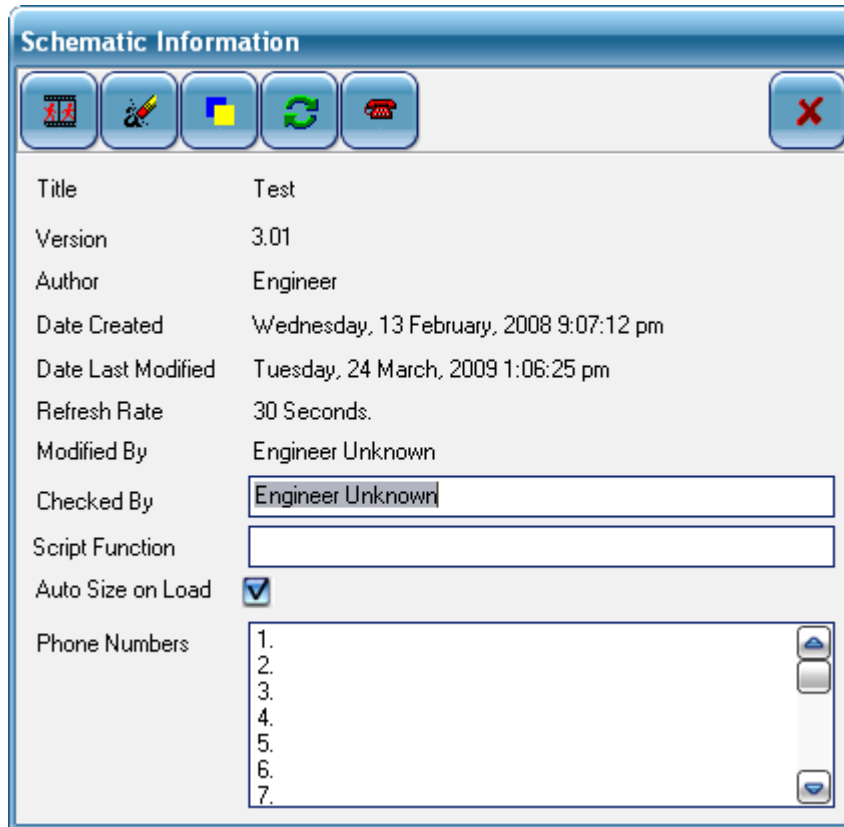


Figure 22

Various information is automatically filled in, but there are several options that may be changed as described below.

- **Bitmap**

<Clicking> this button will open a file dialog which can be used to load a bitmap to use as the schematic background picture.

For this example we can use the supplied fancoil bitmap called FCU.BMP which is located in the "\\ProgDir\Bitmaps\Backdrops\" directory where ProgDir relates to the location that you installed *interactive intelligence*.

- **Clear**

This button will unload the schematic background picture.

- **Colour**

If a background picture is not going to be used, a background colour can be selected by <Clicking> this button.

- **Refresh**

The default refresh rate (rate at which information is updated from the control system) for schematics is 30 seconds. <Clicking> this button will allow you to alter this value.

- **Phone**

<Clicking> This button will allow you to edit the four '*Phone Number*' fields. Each of these numbers corresponds to one of the device drivers. When this schematic is loaded this number is sent to the device driver. If the driver supports this function it can use this number to connect to a remote site using its own modem technology.

Leave these blank if you are following this example.

- **Script Function**

Clicking here will open a window that will allow you to choose a VB Script function that is to be run when the schematic is opened.

- **Auto Size On Load**

If this check box is ticked, the main program window will size to fit the background picture (if loaded). We recommend drawing your background pictures to the required size and setting this option.

The next step is to start adding controls which is explained in the next topic.

7.3.2 Adding a control

When you go into edit mode, the following toolbar will be displayed.

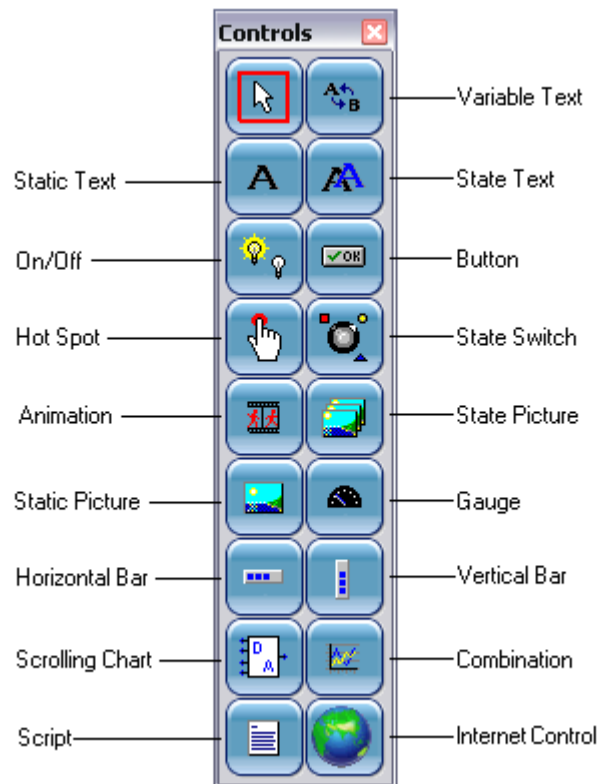


Figure 23

This toolbar gives a selection of available control types that can be placed on a schematic. All of these controls are discussed in detail later in the chapter "Control Descriptions".

If the toolbar is <Dragged> to the top or left of the main window it will 'Dock' in that position. If required it can be <Dragged> away from the docked position to become floating again.

The toolbar can also be re-sized to your preference.

For this example choose <Click> 'Variable Text' then draw the control to the required size with the mouse onto the main window. The result of this action will be a 'Variable Text' control placed on the schematic and a property editor window displaying.

The 'Variable Text' control is a text box that is used to display a piece of information from a control system in a textual format. The property editor allows you to alter the look of the control to suit your needs, and also enables you to tell the control what information to ask the control system for.

For simplicity this example will only modify a few of the many properties available, as mentioned earlier, all controls are covered in detail later.

The property editor for the 'Variable Text' control, when first displayed, will look as in figure 24.

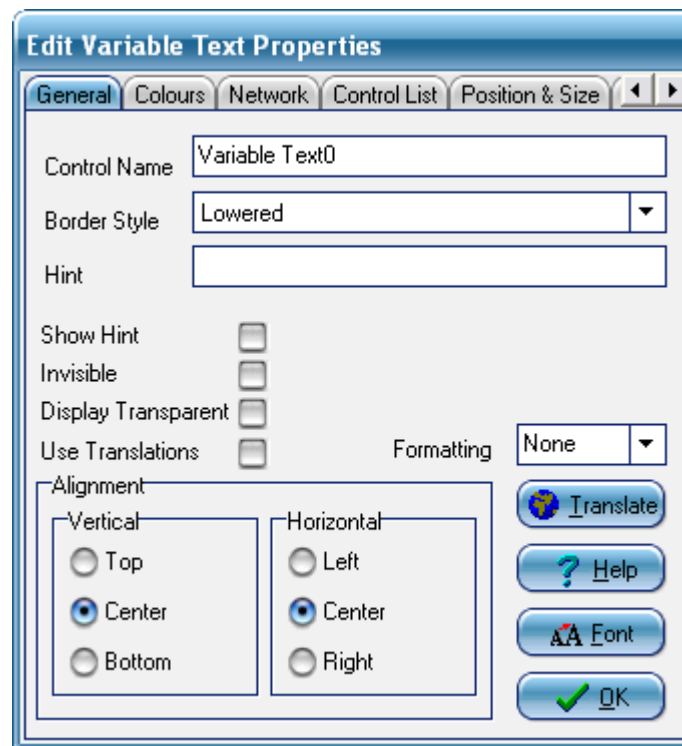


Figure 24

The first property of interest is '*Control Name*'. Although all controls are allocated a default name, we strongly recommend that you re-name them with a name that describes its function. For example, if the control is going to display a room temperature it could be named "Room Temperature". In fact if you are following this example, edit the control name using the name just given.

The main reason for entering a meaningful name is that controls can be set to read data from other controls. Trying to select the right control to read from can be almost impossible if you are presented with a list of vague names.

Now <Click> on the '*Network*' tab. The property editor will now change to look as follows:

Figure 25

The four most important properties on this page are:

- Device Driver
- What to read (also referred to as code).
- Device
- Network

This example assumes that you have loaded the device driver required to communicate with your control system. If you do not have a connection to any control system the TestDriver can be used. this driver just returns random data so that a schematic may be tested.

To see how to load device drivers see the chapter called "Driver Setup".

To configure the control to display data follow these steps:

From the '*Device Driver*' combo box, select the driver that you wish this control to retrieve its data from

In the '*What to read*', '*Device*' and '*Network*' fields enter the information as required for the device driver in use. This information must be supplied by the author or supplier of the device driver in question.

If you are using the TestDriver you may enter anything you like in these fields, for example:

```
'What to read'  Sensor1_Value
'Device'       Controller_1
'Network'      Network_1
```

If the device driver being used supports object selection, <Double Clicking> either of the above fields will instruct the driver to open its own window which will allow you to select information that can be

automatically pasted into the fields.

Once the above information has been entered, <Click> the '*General*' tab then <Click> the '*OK*' button. This will close the property editor. If you wish to re-edit a control, <Double Clicking> on it will open the property editor again.

To move the control, hold down the <Shift> key then drag the control with the mouse while pressing the left mouse button.

To size the control, make sure that the control is selected, then as the mouse is moved over the edges of the control the cursor will change to a sizing symbol. When this happens, hold down the left mouse button and drag the mouse to re-size the control.

The above procedure is carried out to add other controls as required to the schematic.

When editing is completed, from the main menu select '*Mode*', '*Run*'. You will be asked whether to save the modified schematic, select '*Yes*'.

The schematic is now saved and *interactive intelligence* returns to run mode. Any controls on the schematic that have been configured to retrieve data will do so and display it accordingly.

To re-edit a schematic, make sure that it is currently loaded and displayed, then from the main menu select '*Mode*', '*Edit*'.

7.4 Control Descriptions

7.4.1 Controls Types Overview

In the following chapters each of the available control types are described. The format of the descriptions is as follows:

- **Description**

A description of the purpose of the control.

- **Property topics**

A list of topics which cover each of the property editor tabs for this control type.

A picture of every editor tab is given along with a description of the purpose and effect of each property.

Control types available in this version of *interactive intelligence* are:

- On/Off
- Variable Text
- State Picture
- Static Picture
- Static Text
- Animation
- Horizontal Bar
- Vertical Bar
- Button
- Hot Spot
- Combination
- Gauge

State Text
Script
Scrolling Chart

As *interactive intelligence* evolves new types may be added along with suitable documentation updates.

7.4.2 On/Off

7.4.2.1 Description

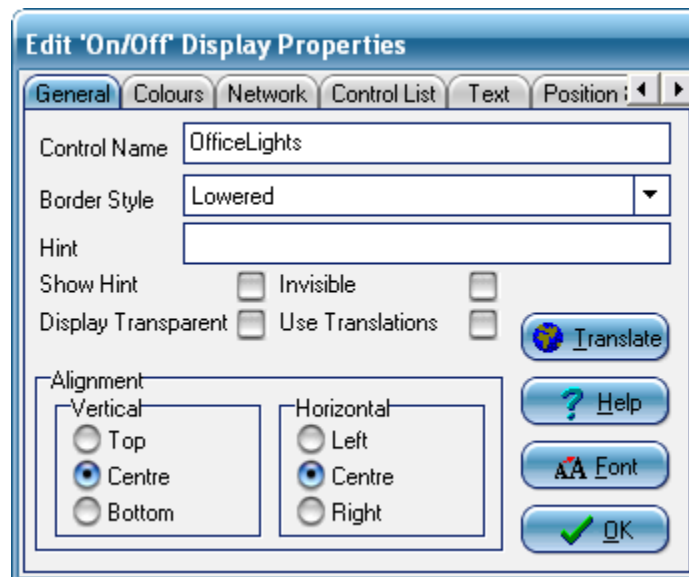
The *On/Off* control is a simple object that is used to read data from a device and display a piece of text to describe the state of that data.

If enabled the control can be clicked on at run-time to enable retrieval and display of a data log from a network device.

Two text strings can be entered, one of which will be displayed when the input data is non zero (classed as an ON state) and the other which will be displayed when the data is zero (OFF state).

Various properties are adjustable that allow the look of the control to be altered to suit your needs.

7.4.2.2 General



- **Control Name**

A unique name to identify this control within the schematic.

- **Border Style**

Selects the type of border that is drawn around the control.

- **Vertical Alignment**

Determines whether text is justified to the top, bottom or centre of the control.

- **Horizontal Alignment**

Determines whether text is justified to the left, right or centre of the control.

- **Font**

Opens a font selection dialog. The selected font is used to display text in the control.

- **OK**

Closes the property editor.

- **Help**

Displays the online help for the control.

- **Invisible**

If ticked, makes this control invisible at runtime. This is useful if the control is just being used as a data source for other controls and has no visual importance.

- **Translate**

Opens the translation edit window. This allows you to enter data that controls what the user see's and what is sent to the driver.

For more detailed information see the chapter about the translation editor.

- **Use Translations**

If ticked and translations have been setup, they will be used. If un-ticked, translations will be ignored.

- **Display Transparent**

If ticked, hides the background of the control in run mode.

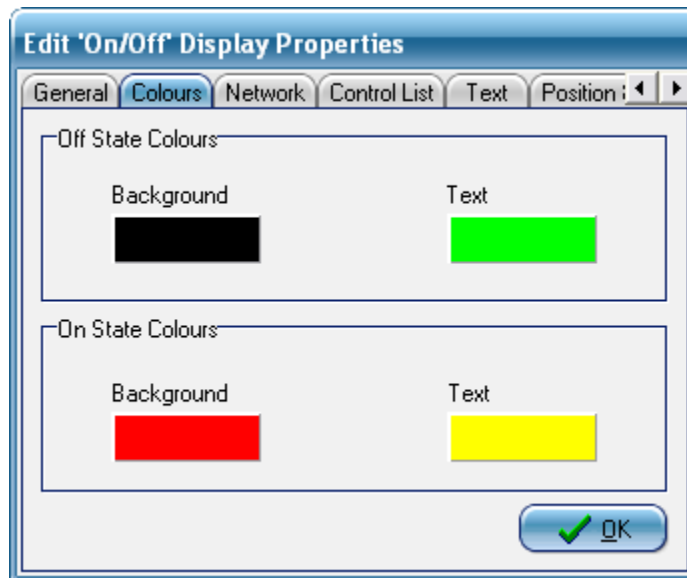
- **Hint**

Enter text that explains purpose of control to user.

- **Show Hint**

If ticked the hint text will be shown to the user when the mouse pauses over the control.

7.4.2.3 Colours



<Clicking> On a coloured box displays a colour selection dialog.

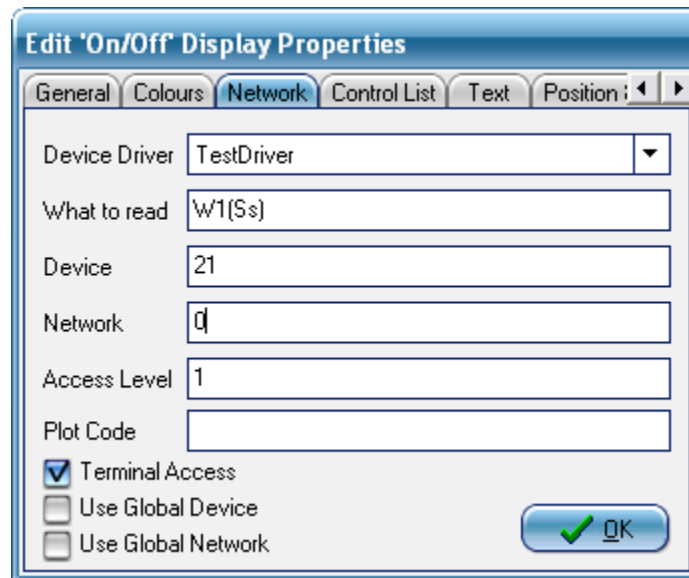
- **Off State Colours**

The colours selected here will be used to display the text when the data received by the control is OFF

- **On State Colours**

The colours selected here will be used to display the text when the data received by the control is ON

7.4.2.4 Network



- **Device Driver**

Select the device driver from which this control should request its data.

- **What to read (sometimes referred to as code)**

Digital object to read - consult device driver documentation for further information.

- **Device**

Device to read object from - consult device driver documentation for further information.

- **Network**

Network on which device resides - consult device driver documentation for further information.

- **Access Level**

Security level at which a user must be logged on to be able to adjust status of the digital object (ie: change from Off to On) or to be able to open the terminal window.

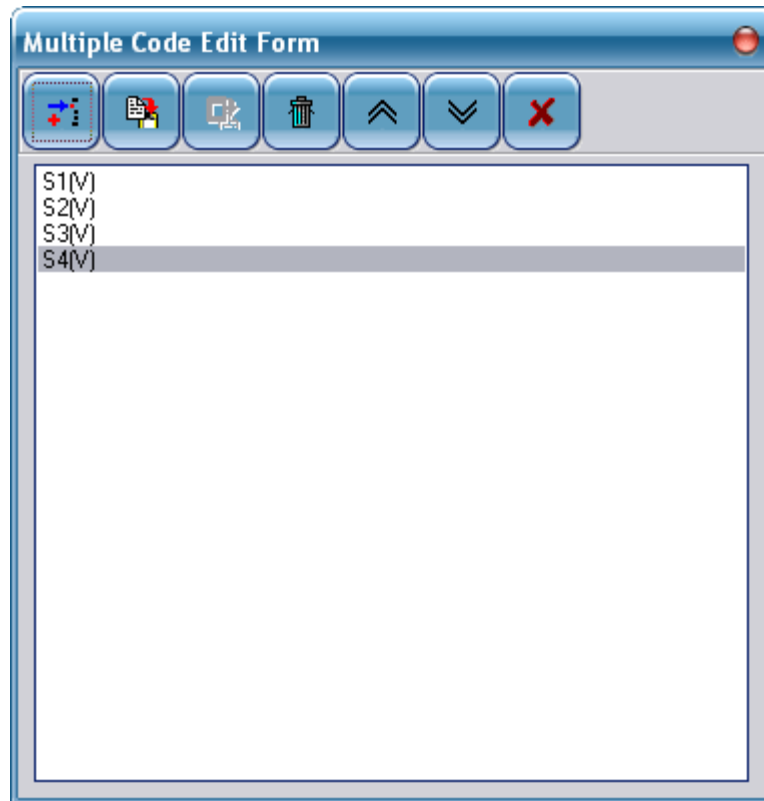
- **Plot Code**

If the device can log its own data, enter the code here that will retrieve the data for graphing - consult device driver documentation for further information.

- **Use Global Device/Network**

A jump from another schematic can pass in new Code, Device and Network values. If this box is ticked, these are used in place of the values entered here. This facility enables one schematic to be used for multiple devices.

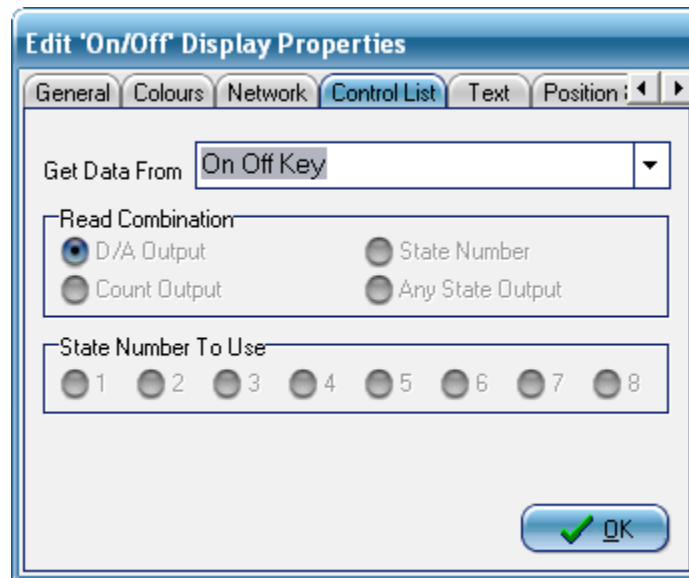
If a control is to look at different codes when a jump is performed, a list of codes has to be given to the control. To do this, <Right Click> on the '*What To Read*' field. This will show a pop-up menu from which you should select '*Multiple Codes*'. This will display the following window where you can add or remove codes.



- **Terminal Access**

When ticked, and if the selected driver supports terminal mode the user can <Right Click> on the control at run time to open the terminal window. Consult device driver documentation for further information.

7.4.2.5 Control List



- **Get Data From**

This combo box allows you to select from a list of other controls that are on this schematic. If this property is *not* empty, this control will source its data from the selected control *INSTEAD* of from the network.

Any non zero value supplied to this control will be treated as an ON condition and any zero value will be treated as an OFF condition.

If the type of the source control is not a combination module, the following properties will be disabled otherwise they are used to select from which output of the combination module to source the data.

- **Read Combination**

If the type of the source control is a combination module, the data can be read from one of several outputs as follows:

- **D/A Output**

Source data from combination module Digital to Analogue output (this is the decimal value calculated from the 8 digital inputs of a combination module).

- **Count Output**

Source data from combination module Count output (this is a count of how many inputs to the combination module are non zero).

- **State Number**

Source data from one of the state condition outputs of a combination module. The state to use is selected with the '*State To Use*' property.

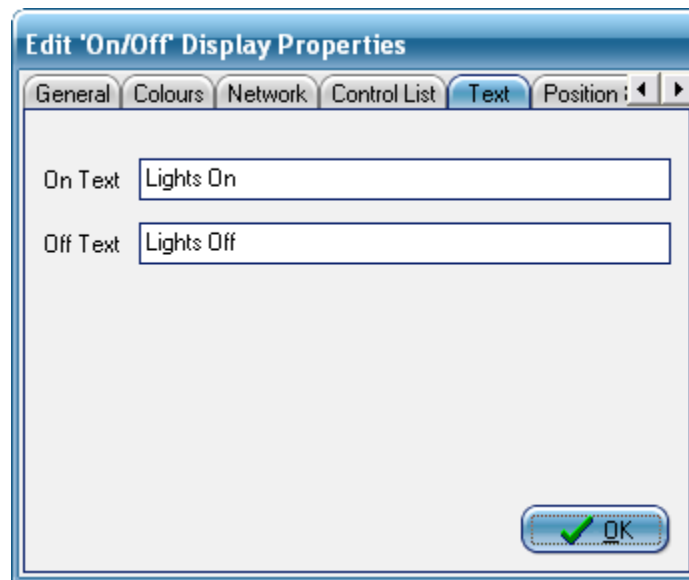
- **Any State Output**

If any of the state condition outputs of a combination module are true, this control will show ON, otherwise it will show OFF.

- **State Number To Use**

Which state output to read from a combination module. Only relevant if '*State Number*' is selected.

7.4.2.6 Text



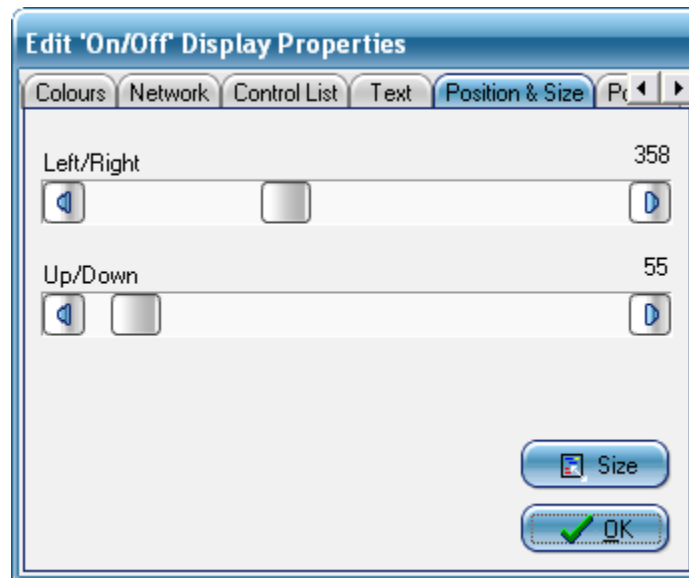
- **On Text**

Enter the text that will be displayed when the incoming data is non zero or ON.

- **Off Text**

Enter the text that will be displayed when the incoming data is zero or OFF.

7.4.2.7 Position & Size



- **Left/Right**

Moving this slider will move the controls horizontal position on the schematic.

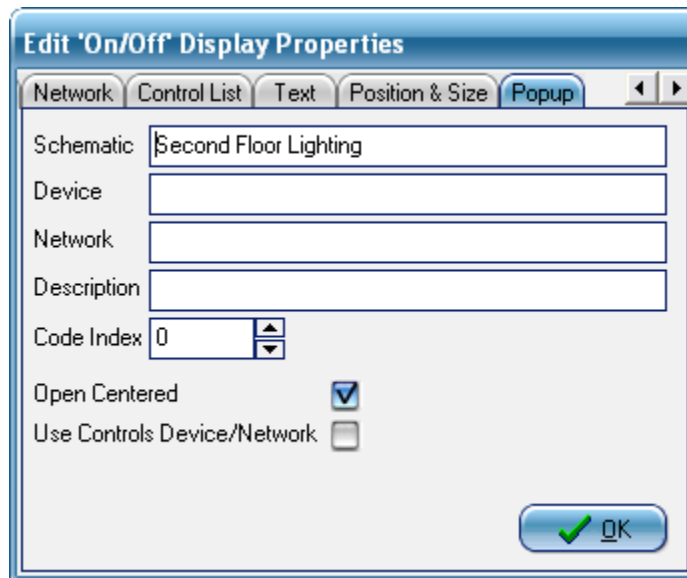
- **Up/Down**

Moving this slider will move the controls vertical position on the schematic.

- **Size**

Pressing this button will change the function of the sliders so that they will re-size the control instead of moving it.

7.4.2.8 Pop-up



- **Schematic**

<Click> here to select the schematic to open as a pop-up when this control is <Right Clicked> on.

- **Device**

A device can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Network**

A network can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Description**

Text entered in this property will be passed to the pop-up schematic and will be used by any static text controls that have their *Use Global Description* property set.

- **Code Index**

If this property is greater than zero this number tells the controls on the pop-up schematic which code to use to retrieve their data (if the controls have multiple codes entered).

- **Open Centered**

If checked the pop-up schematic will open centered on the screen.

- **Use Controls Device/Network**

If checked and this control is using a global device/network it will pass it on to the pop-up schematic.

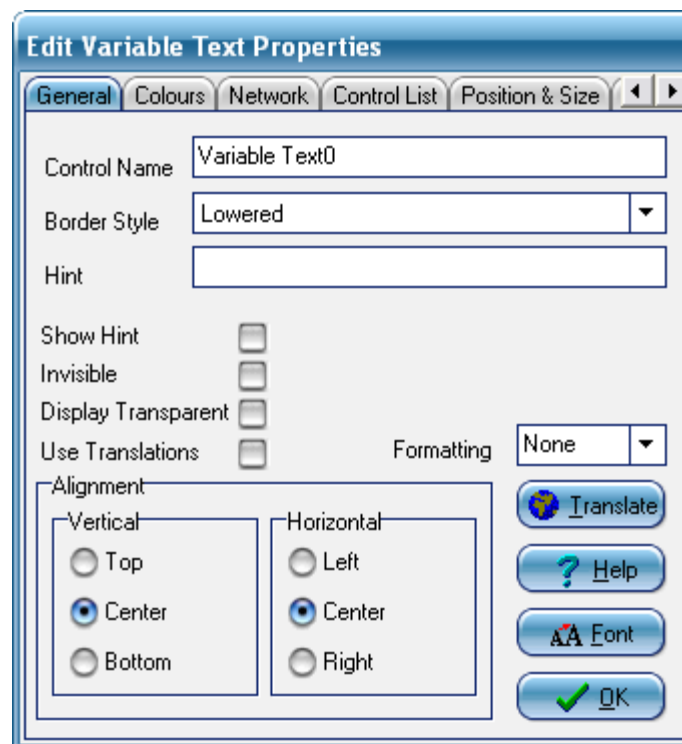
7.4.3 Variable Text

7.4.3.1 Description

The *Variable Text* control is an object that is used to read and display data from a device. If enabled the control can be clicked on at run-time to allow adjustment of the value or to retrieve and display a data log from a network device.

Various properties are adjustable that allow the look of the control to be altered to suit your needs.

7.4.3.2 General



- **Control Name**

A unique name to identify this control within the schematic.

- **Border Style**

Selects the type of border that is drawn around the control.

- **Vertical Alignment**

Determines whether text is justified to the top, bottom or centre of the control.

- **Horizontal Alignment**

Determines whether text is justified to the left, right or centre of the control.

- **Font**

Opens a font selection dialog. The selected font is used to display text in the control.

- **Translate**

Opens the translation edit window. This allows you to enter data that controls what the user see's and what is sent to the driver.

For more detailed information see the chapter about the translation editor.

- **Use Translations**

If ticked and translations have been setup, they will be used. If un-ticked, translations will be ignored.

- **OK**

Closes the property editor.

- **Help**

Displays the online help for the control.

- **Invisible**

If ticked, makes this control invisible at runtime. This is useful if the control is just being used as a data source for other controls and has no visual importance.

- **Display Transparent**

If ticked, hides the background of the control in run mode.

- **Hint**

Enter text that explains purpose of control to user.

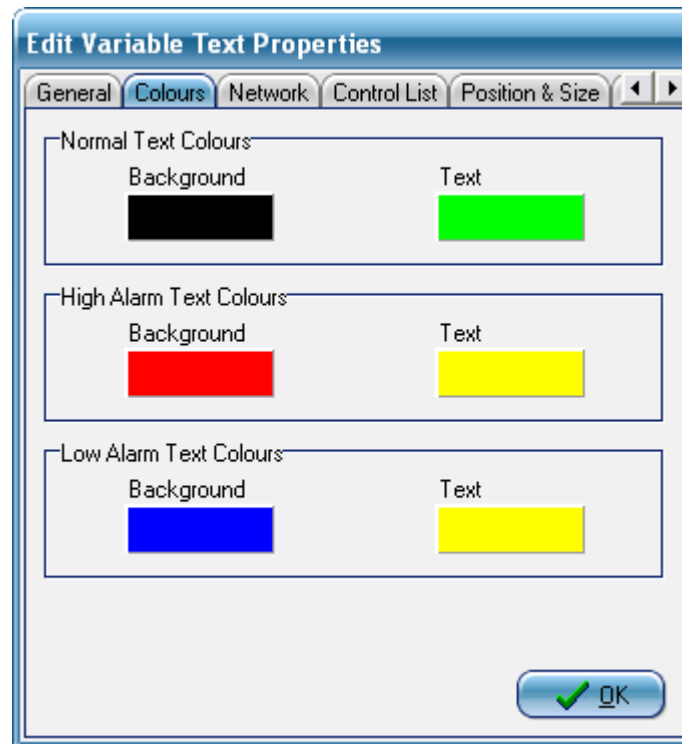
- **Show Hint**

If ticked the hint text will be shown to the user when the mouse pauses over the control.

- **Formatting**

Allows you to select how many decimal places are shown for numeric items.

7.4.3.3 Colours



<Clicking> On a coloured box displays a colour selection dialog.

- **BackGround**

Background colour of control.

- **Text**

Font colour used for displayed text.

- **Normal Text Colours**

Colours used to display the text when the incoming data is within alarm limits.

- **High Alarm text Colours**

Colours used to display the text when the incoming data is equal to or above the controls high alarm limit.

- **Low Alarm Text Colours**

Colours used to display the text when the incoming data is equal to or below the controls low alarm limit.

7.4.3.4 Network

Edit Variable Text Properties

General Colours **Network** Control List Position & Size

Device Driver: TestDriver

What to read: S1[V]

Device: 34 High Alarm: 101

Network: 12 Low Alarm: -101

Prefix: Units:

Plot Code:

Password:

Access Level: 1 Lower Limit: 0 Upper Limit: 100

Enumerations:

Tick If Adjustable Tick If Item Is Numeric

Use Global Device Terminal Access

Use Global Network

OK

- **Device Driver**

Select the device driver from which this control should request its data.

- **What to read (sometimes referred to as code)**

Object to read - consult device driver documentation for further information.

- **Device**

Device to read object from - consult device driver documentation for further information.

- **Network**

Network on which device resides - consult device driver documentation for further information.

- **Access Level**

Security level at which a user must be logged on to be able to adjust the value of the object or to be able to open the terminal window.

- **High Alarm**

If the value received by this control is equal to or above the value entered here, the text display colours will be changed to those set on the colours tab.

- **Low Alarm**

If the value received by this control is equal to or below the value entered here, the text display colours will be changed to those set on the colours tab.

- **Tick If Adjustable**

If you wish a user to be able to adjust the value displayed by this control, this box must be ticked.

- **Tick If Item Is Numeric**

If the value displayed is numeric, tick this box. This affects the type of input box that is displayed to the user to make an adjustment.

- **Upper Limit**

If the value is numeric and adjustable, this value sets the upper limit of the users input range.

- **Lower Limit**

If the value is numeric and adjustable, this value sets the lower limit of the users input range.

- **Enumerations**

If the value is adjustable and you want to limit the adjustments to a set of predefined values, enter the allowed values into this field with each one being separated by a comma. For example:

Off,Manual,Auto

or

19,20,21,22,23

When the user <Clicks> on the control to adjust the value, a dialog window opens presenting the list of allowed values to choose from. When the user makes a selection one of two things will happen depending on the state of the check box called '*Tick If Item Is Numeric*'.

If the check box is not ticked, the chosen value will be sent to the device driver.

If the check box is ticked, a number representing the position of the selection in the list is sent to the device driver.

ie:

If Off was selected, 0 will be sent to the driver.

If Auto was selected, 3 will be sent to the driver.

If 20 was selected, 1 will be sent to the driver.

To enable the normal adjustment dialogs just empty this field.

- **Prefix**

Any text entered into this field will be prepended with a space to the displayed value.

- **Units**

Any text entered into this field will be added with a space to the displayed value. The drop down list contains some standard units.

- **Plot Code**

If the device can log its own data, enter the code here that will retrieve the data for graphing - consult device driver documentation for further information.

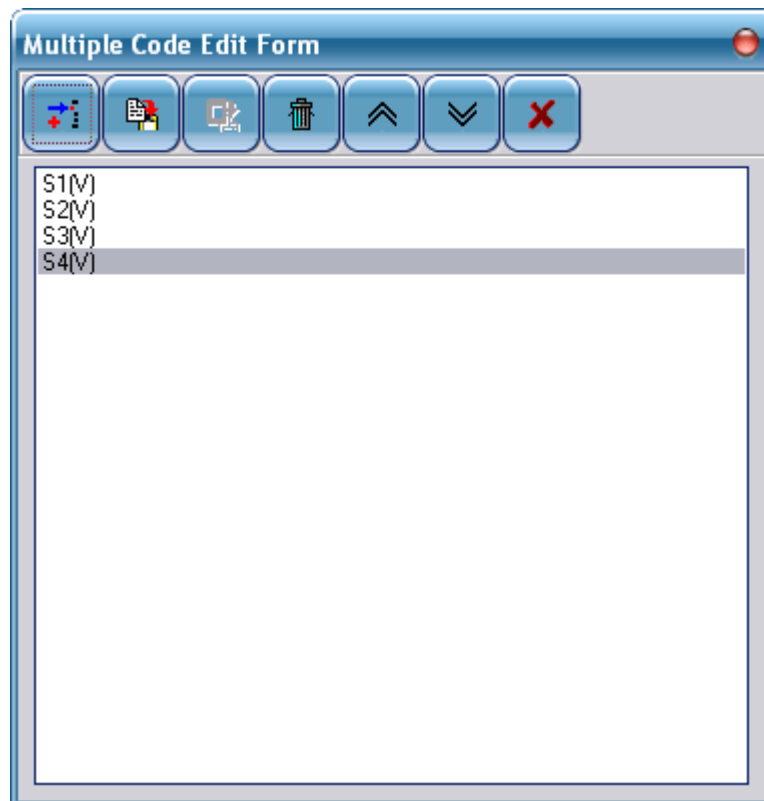
- **Password**

Any text entered here is passed to the device driver when an adjustment is carried out - consult device driver documentation for further information.

- **Use Global Device/Network**

A jump from another schematic can pass in new Code, Device and Network values. If this box is ticked, these are used in place of the values entered here. This facility enables one schematic to be used for multiple devices.

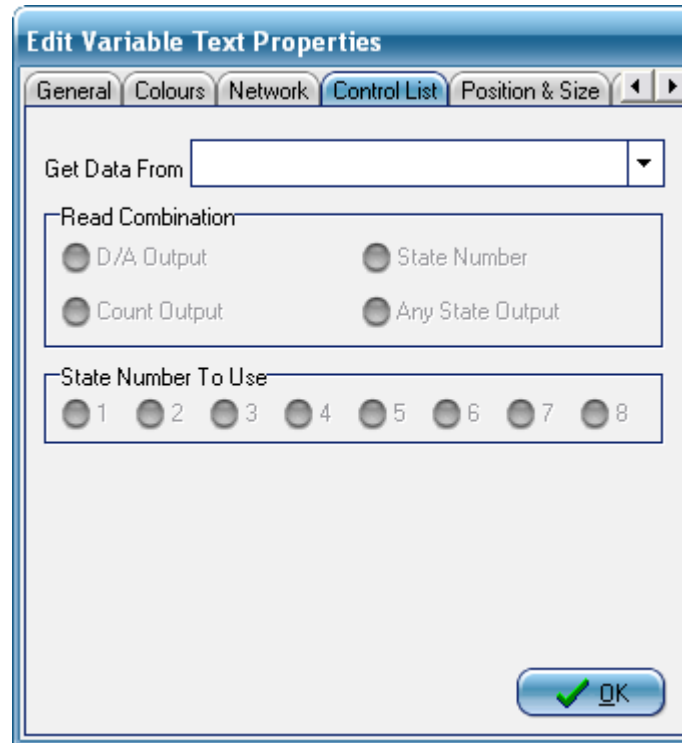
If a control is to look at different codes when a jump is performed, a list of codes has to be given to the control. To do this, <Right Click> on the '*What To Read*' field. This will show a pop-up menu from which you should select '*Multiple Codes*'. This will display the following window where you can add or remove codes.



- **Terminal Access**

When ticked, and if the selected driver supports terminal mode the user can <Right Click> on the control at run time to open the terminal window. Consult device driver documentation for further information.

7.4.3.5 Control List



- **Get Data From**

This combo box allows you to select from a list of other controls that are on this schematic. If this property is *not* empty, this control will source its data from the selected control **INSTEAD** of from the network.

If the type of the source control is not a combination module, the following properties will be disabled otherwise they are used to select from which output of the combination module to source the data.

- **Read Combination**

If the type of the source control is a combination module, the data can be read from one of several outputs as follows:

- **D/A Output**

Source data from combination module Digital to Analogue output (this is the decimal value calculated from the 8 digital inputs of a combination module).

- **Count Output**

Source data from combination module Count output (this is a count of how many inputs to the combination module are non zero).

- **State Number**

Source data from one of the state condition outputs of a combination module. The state to use is selected with the 'State To Use' property.

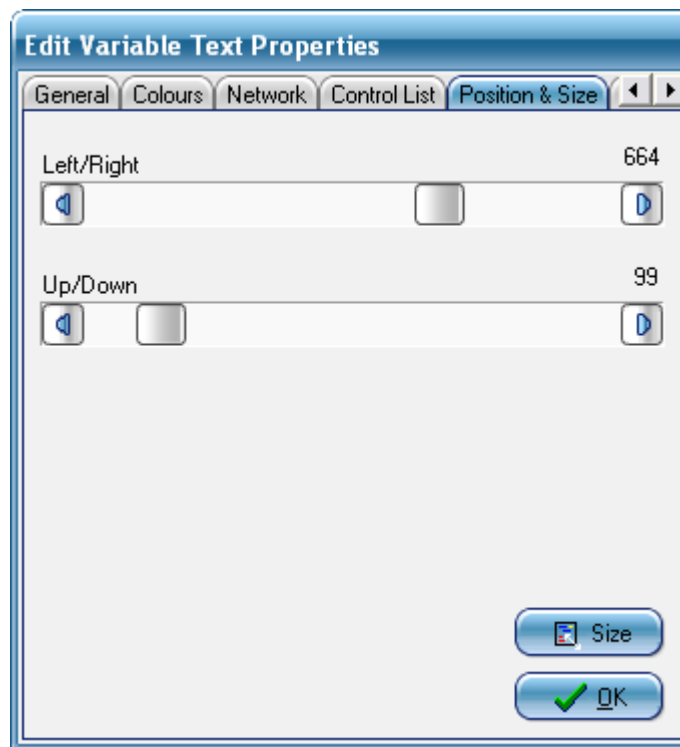
- **Any State Output**

If any of the state condition outputs of a combination module are true, this control will show 1, otherwise it will show 0.

- **State Number To Use**

Which state output to read from a combination module. Only relevant if 'State Number' is selected.

7.4.3.6 Position & Size



- **Left/Right**

Moving this slider will move the controls horizontal position on the schematic.

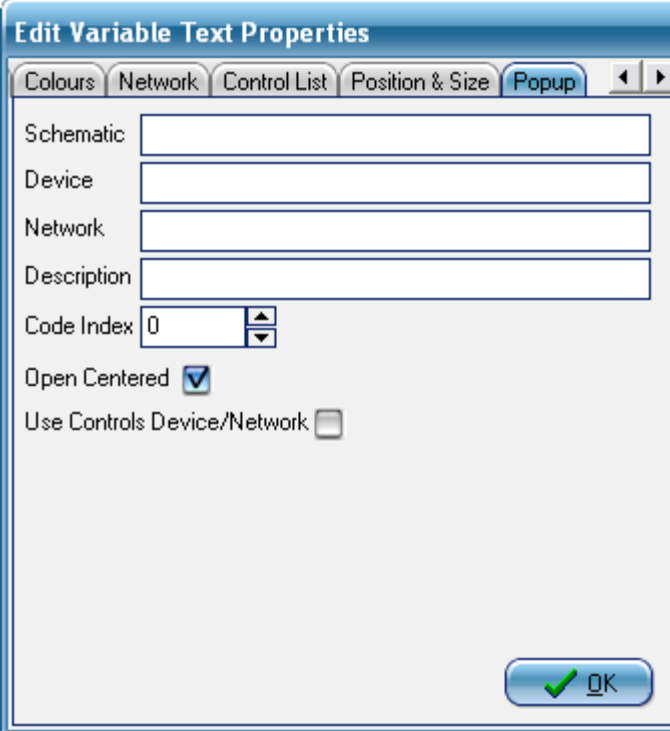
- **Up/Down**

Moving this slider will move the controls vertical position on the schematic.

- **Size**

Pressing this button will change the function of the sliders so that they will re-size the control instead of moving it.

7.4.3.7 Pop-up



- **Schematic**

<Click> here to select the schematic to open as a pop-up when this control is <Right Clicked> on.

- **Device**

A device can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Network**

A network can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Description**

Text entered in this property will be passed to the pop-up schematic and will be used by any static text controls that have their *Use Global Description* property set.

- **Code Index**

If this property is greater than zero this number tells the controls on the pop-up schematic which code to use to retrieve their data (if the controls have multiple codes entered).

- **Open Centered**

If checked the pop-up schematic will open centered on the screen.

- **Use Controls Device/Network**

If checked and this control is using a global device/network it will pass it on to the pop-up schematic.

7.4.4 State Picture

7.4.4.1 Description

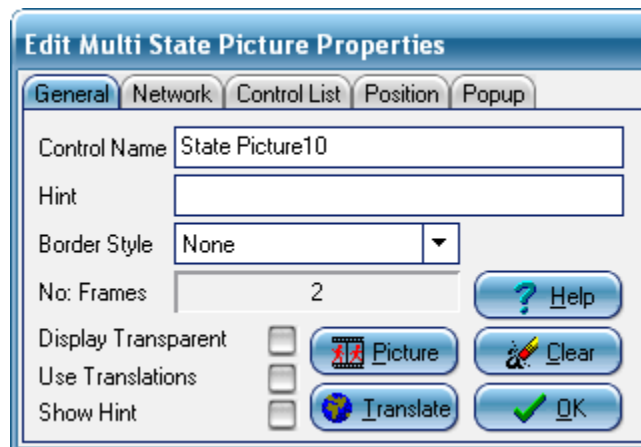
The *State Picture* control is an object that is used to read data from a device and then display a picture to show the status of the data.

In order to achieve this, a bitmap is created containing a number of equally sized pictures (called frames) placed side by side, much like a strip of movie film.

Which frame is displayed is dependent on the data received by the control. For example, if the incoming data were to be 3 then frame 3 would be displayed. If the incoming data were to be 0 then frame 0 would be displayed (the first frame in the strip is frame 0). Some example bitmaps are shown in the '*Network*' section about this control.

This control can be used to great effect with the *Combination* control to monitor multiple digital values that may describe whether a pump is running, stopped or failed.

7.4.4.2 General



- **Control Name**

A unique name to identify this control within the schematic.

- **Border Style**

Selects the type of border that is drawn around the control.

- **OK**

Closes the property editor.

- **Help**

Displays the online help for the control.

- **Picture**

Displays a bitmap selector so that a bitmap that contains a set of pictures can be loaded. The bitmap selector is discussed in the chapter called "The Bitmap Selector".

The bitmap should consist of a strip of equal size picture frames. Here are a couple of examples:



- **Clear**

Unloads the current bitmap.

- **No: Frames**

Tells the control how many individual picture frames are contained in the loaded bitmap. Both of the above examples contain 2 frames.

- **Display Picture Transparent**

When ticked this tells the control to display the picture transparently. The control uses the colour of the bottom left pixel as the transparent colour.

If the control is a type that uses multi-frame pictures, each frame must have its bottom left pixel set to the required transparent colour.

- **Translate**

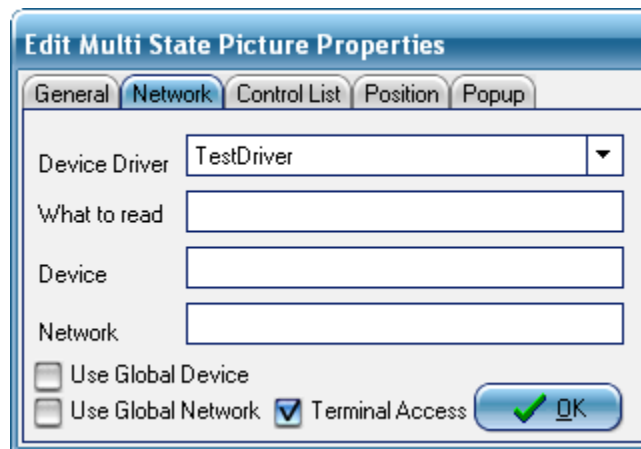
Opens the translation edit window. This allows you to enter data that controls what the user see's and what is sent to the driver.

For more detailed information see the chapter about the translation editor.

- **Use Translations**

If ticked and translations have been setup, they will be used. If un-ticked, translations will be ignored.

7.4.4.3 Network



- **Device Driver**

Select the device driver from which this control should request its data.

- **What to read (sometimes referred to as code)**

Object to read - consult device driver documentation for further information.

- **Device**

Device to read object from - consult device driver documentation for further information.

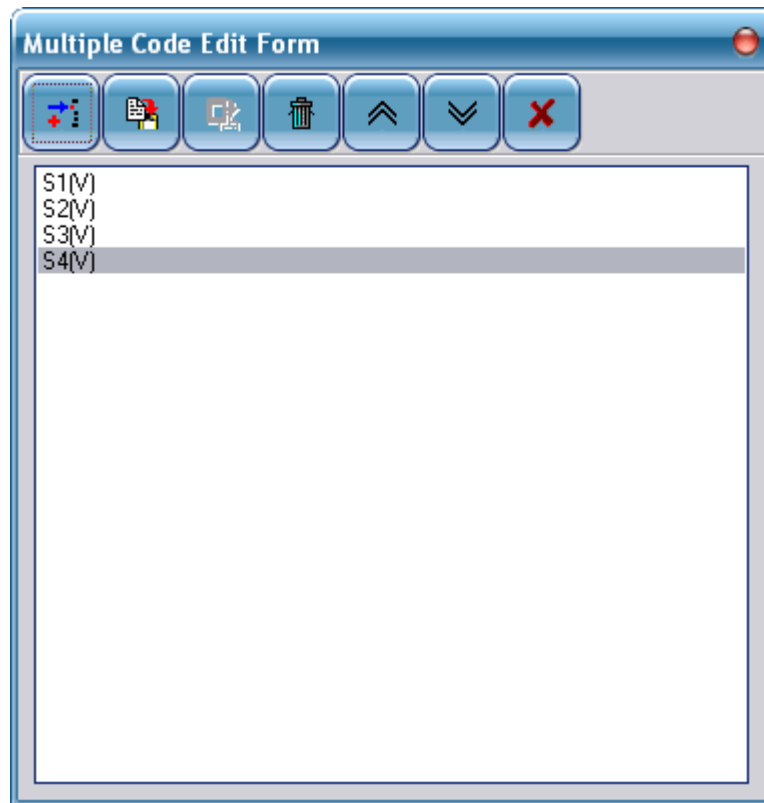
- **Network**

Network on which device resides - consult device driver documentation for further information.

- **Use Global Device/Network**

A jump from another schematic can pass in new Code, Device and Network values. If this box is ticked, these are used in place of the values entered here. This facility enables one schematic to be used for multiple devices.

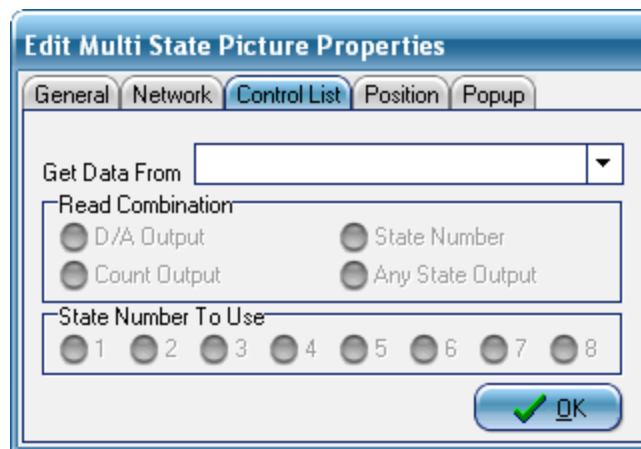
If a control is to look at different codes when a jump is performed, a list of codes has to be given to the control. To do this, <Right Click> on the 'What To Read' field. This will show a pop-up menu from which you should select 'Multiple Codes'. This will display the following window where you can add or remove codes.



- **Terminal Access**

When ticked, and if the selected driver supports terminal mode the user can <Right Click> on the control at run time to open the terminal window. Consult device driver documentation for further information.

7.4.4.4 Control List



- **Get Data From**

This combo box allows you to select from a list of other controls that are on this schematic. If

this property is *not* empty, this control will source its data from the selected control **INSTEAD** of from the network.

If the type of the source control is not a combination module, the following properties will be disabled otherwise they are used to select from which output of the combination module to source the data.

- **Read Combination**

If the type of the source control is a combination module, the data can be read from one of several outputs as follows:

- **D/A Output**

Source data from combination module Digital to Analogue output (this is the decimal value calculated from the 8 digital inputs of a combination module).

- **Count Output**

Source data from combination module Count output (this is a count of how many inputs to the combination module are non zero).

- **State Number**

Source data from one of the state condition outputs of a combination module. The state to use is selected with the '*State To Use*' property.

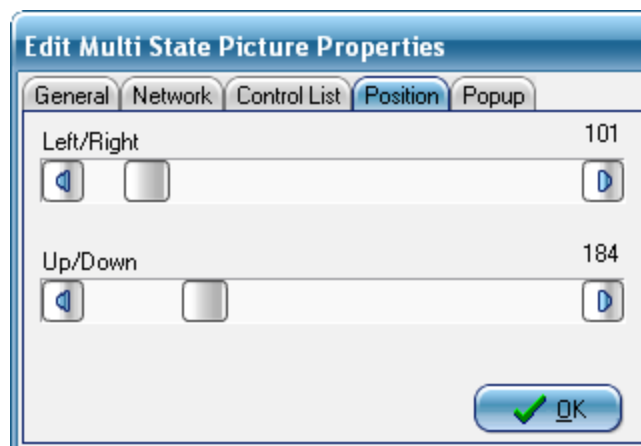
- **Any State Output**

If any of the state condition outputs of a combination module are true, this control will show 1, otherwise it will show 0.

- **State Number To Use**

Which state output to read from a combination module. Only relevant if '*State Number*' is selected.

7.4.4.5 Position



- **Left/Right**

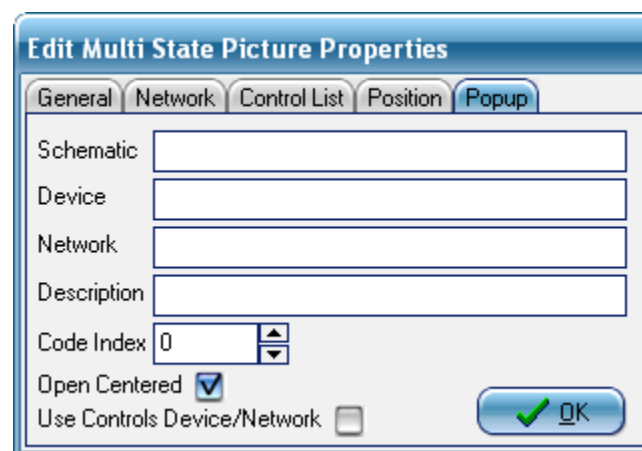
Moving this slider will move the controls horizontal position on the schematic.

- **Up/Down**

Moving this slider will move the controls vertical position on the schematic.

This control automatically sizes to fit the size of a single picture frame (as contained in the loaded bitmap).

7.4.4.6 Pop-up



- **Schematic**

<Click> here to select the schematic to open as a pop-up when this control is <Right Clicked> on.

- **Device**

A device can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Network**

A network can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Description**

Text entered in this property will be passed to the pop-up schematic and will be used by any static text controls that have their *Use Global Description* property set.

- **Code Index**

If this property is greater than zero this number tells the controls on the pop-up schematic which code to use to retrieve their data (if the controls have multiple codes entered).

- **Open Centered**

If checked the pop-up schematic will open centered on the screen.

- **Use Controls Device/Network**

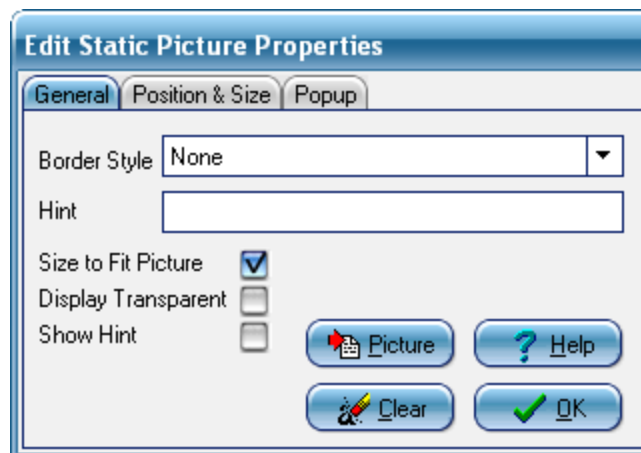
If checked and this control is using a global device/network it will pass it on to the pop-up schematic.

7.4.5 Static Picture

7.4.5.1 Description

The *Static Picture* control is used only to display a picture or to open a pop-up schematic. It has no other function or purpose.

7.4.5.2 General



- **Border Style**

Selects the type of border that is drawn around the control.

- **Size Control To Fit Picture**

When ticked, the control will size to fit the loaded picture. If not ticked, the picture is stretched to fit the control.

- **Picture**

Displays a bitmap selector so that a bitmap can be loaded. The bitmap selector is discussed in the chapter called "The Bitmap Selector".

- **Clear**

Unloads the current bitmap from the control.

- **Display Picture Transparent**

When ticked this tells the control to display the picture transparently. The control uses the colour of the bottom left pixel as the transparent colour. If the control is a type that uses multi-frame pictures, each frame must have its bottom left pixel set to the required transparent colour.

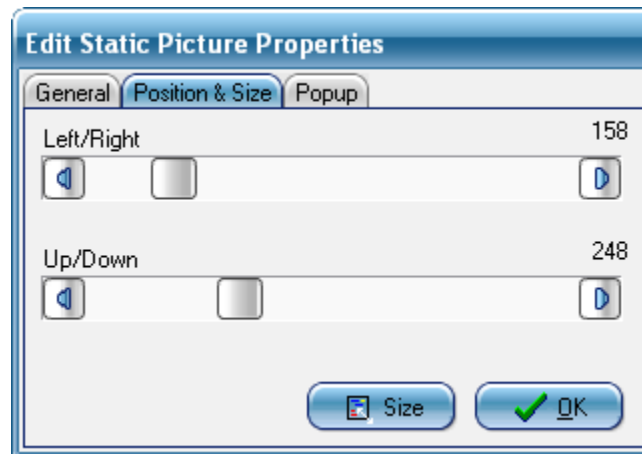
- **OK**

Closes the property editor.

- **Help**

Displays the online help for the control.

7.4.5.3 Position & Size



- **Left/Right**

Moving this slider will move the controls horizontal position on the schematic.

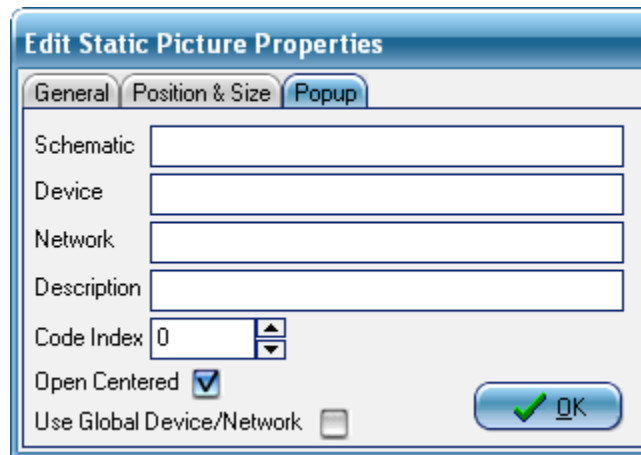
- **Up/Down**

Moving this slider will move the controls vertical position on the schematic.

- **Size**

Pressing this button will change the function of the sliders so that they will re-size the control instead of moving it.

7.4.5.4 Pop-up



- **Schematic**

<Click> here to select the schematic to open as a pop-up when this control is <Right Clicked> on.

- **Device**

A device can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Network**

A network can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Description**

Text entered in this property will be passed to the pop-up schematic and will be used by any static text controls that have their *Use Global Description* property set.

- **Code Index**

If this property is greater than zero this number tells the controls on the pop-up schematic which code to use to retrieve their data (if the controls have multiple codes entered).

- **Open Centered**

If checked the pop-up schematic will open centered on the screen.

- **Use Controls Device/Network**

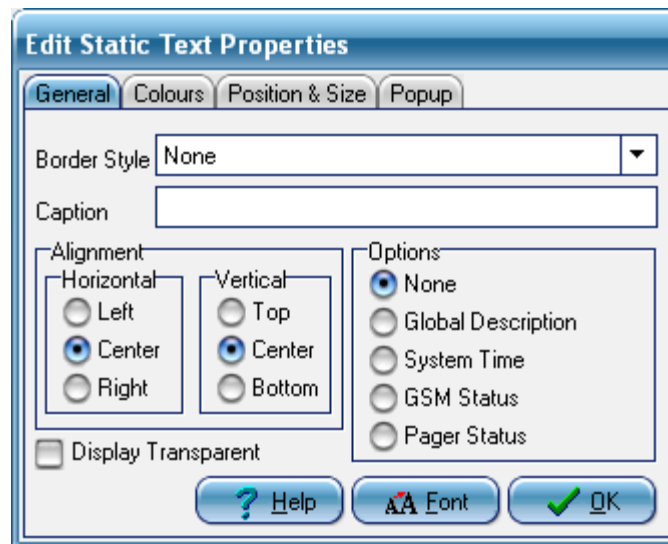
If checked and this control is using a global device/network it will pass it on to the pop-up schematic.

7.4.6 Static Text

7.4.6.1 Description

The *Static Text* control is used only to display a piece of text. It has no other function or purpose.

7.4.6.2 General



- **Border Style**

Selects the type of border that is drawn around the control.

- **Caption**

Text that this control will display.

- **Vertical Alignment**

Determines whether text is justified to the top, bottom or centre of the control.

- **Horizontal Alignment**

Determines whether text is justified to the left, right or centre of the control.

- **Font**

Opens a font selection dialog. The selected font is used to display text in the control.

- **OK**

Closes the property editor.

- **Help**

Displays the online help for the control.

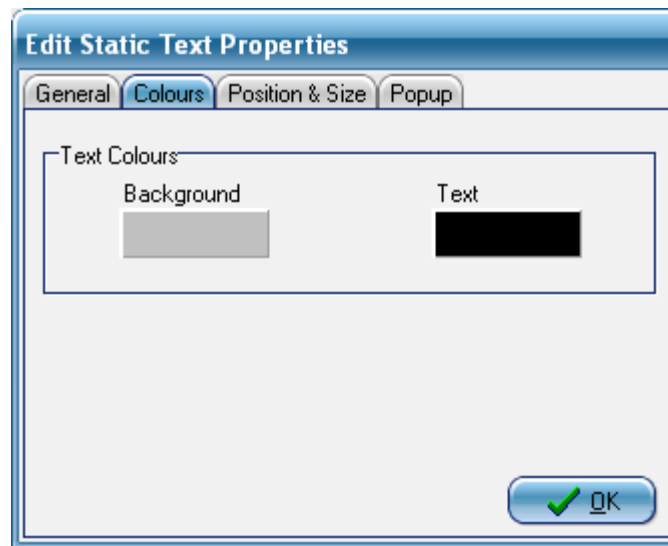
- **Use Global Description**

A jump from another schematic can pass in a new caption. If this box is ticked, this new text is displayed in place of the caption entered here.

- **Display Transparent**

If ticked, hides the background of the control in run mode.

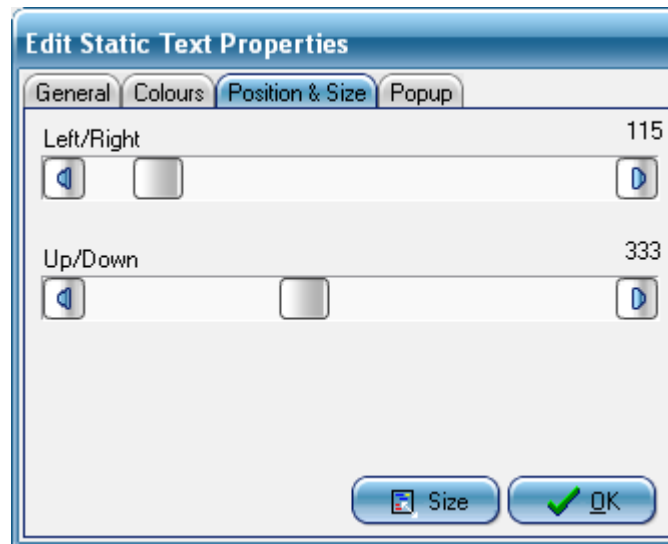
7.4.6.3 Colours



<Clicking> On a coloured box displays a colour selection dialog.

The colours selected here will be used to display the text entered in the caption property.

7.4.6.4 Position & Size



- **Left/Right**

Moving this slider will move the controls horizontal position on the schematic.

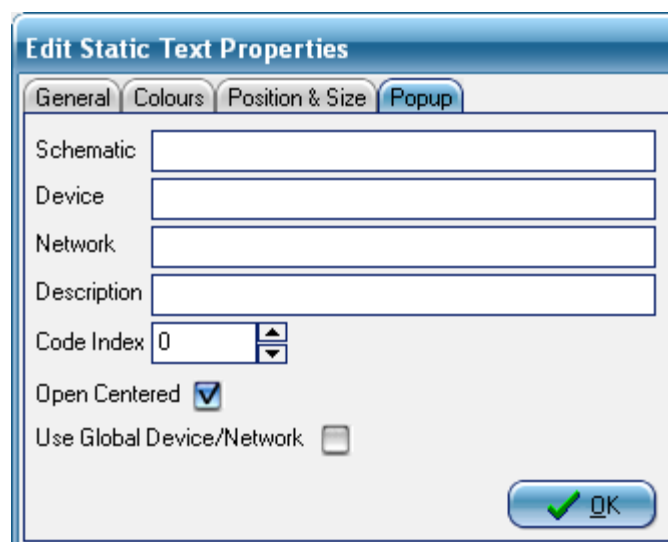
- **Up/Down**

Moving this slider will move the controls vertical position on the schematic.

- **Size**

Pressing this button will change the function of the sliders so that they will re-size the control instead of moving it.

7.4.6.5 Pop-up



- **Schematic**

<Click> here to select the schematic to open as a pop-up when this control is <Right Clicked> on.

- **Device**

A device can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Network**

A network can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Description**

Text entered in this property will be passed to the pop-up schematic and will be used by any static text controls that have their *Use Global Description* property set.

- **Code Index**

If this property is greater than zero this number tells the controls on the pop-up schematic which code to use to retrieve their data (if the controls have multiple codes entered).

- **Open Centered**

If checked the pop-up schematic will open centered on the screen.

- **Use Controls Device/Network**

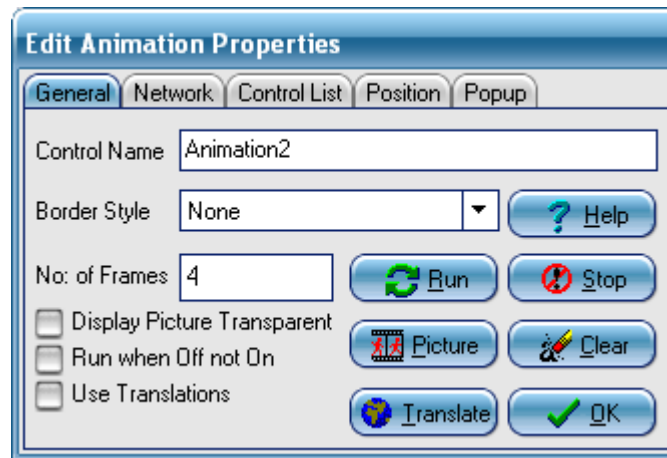
If checked and this control is using a global device/network it will pass it on to the pop-up schematic.

7.4.7 Animation

7.4.7.1 Description

The *Animation* control will run a picture animation (like a movie film strip) when its input value is non zero. When the input is zero the animation will stop.

7.4.7.2 General



- **Control Name**

A unique name to identify this control within the schematic.

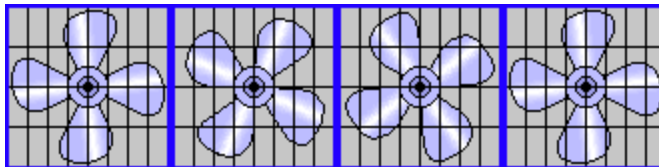
- **Border Style**

Selects the type of border that is drawn around the control.

- **Picture**

Displays a bitmap selector so that a bitmap that contains a set of pictures can be loaded. The bitmap selector is discussed in the chapter called "The Bitmap Selector".

The bitmap should consist of a strip of equal size picture frames. Here is an example:



The first frame in the set is the one that will be displayed when the animation is stopped. When running the rest of the frames are displayed in sequence.

- **Clear**

Unloads the current bitmap.

- **No: Frames**

Tells the control how many individual picture frames are contained in the loaded bitmap. The above examples contain 4 frames.

- **Display Picture Transparent**

When ticked this tells the control to display the picture transparently. The control uses the colour of the bottom left pixel as the transparent colour.

If the control is a type that uses multi-frame pictures, each frame must have its bottom left pixel set to the required transparent colour.

- **Run when Off not On**

This will invert the run state of the control. (i.e. it will run when the network data is off).

- **Run**

<Clicking> This button will start the animation running so that you can see how it will look when the schematic is working.

- **Stop**

<Clicking> This button will stop the animation from running.

- **Translate**

Opens the translation edit window. This allows you to enter data that controls what the user see's and what is sent to the driver.

For more detailed information see the chapter about the translation editor.

- **Use Translations**

If ticked and translations have been setup, they will be used. If un-ticked, translations will be ignored.

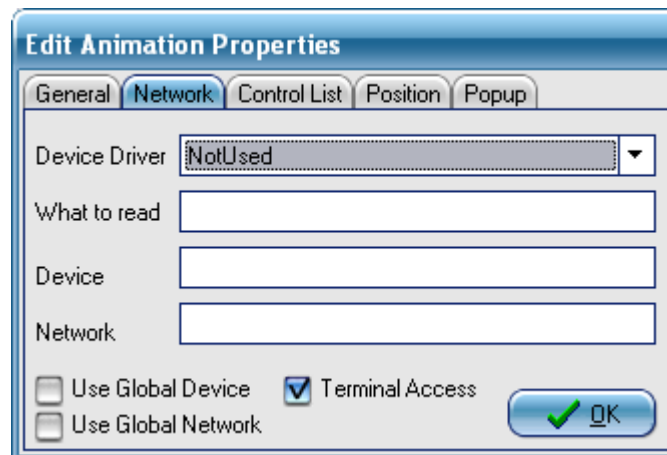
- **OK**

Closes the property editor.

- **Help**

Displays the online help for the control.

7.4.7.3 Network



- **Device Driver**

Select the device driver from which this control should request its data.

- **What to read (sometimes referred to as code)**

Object to read - consult device driver documentation for further information.

- **Device**

Device to read object from - consult device driver documentation for further information.

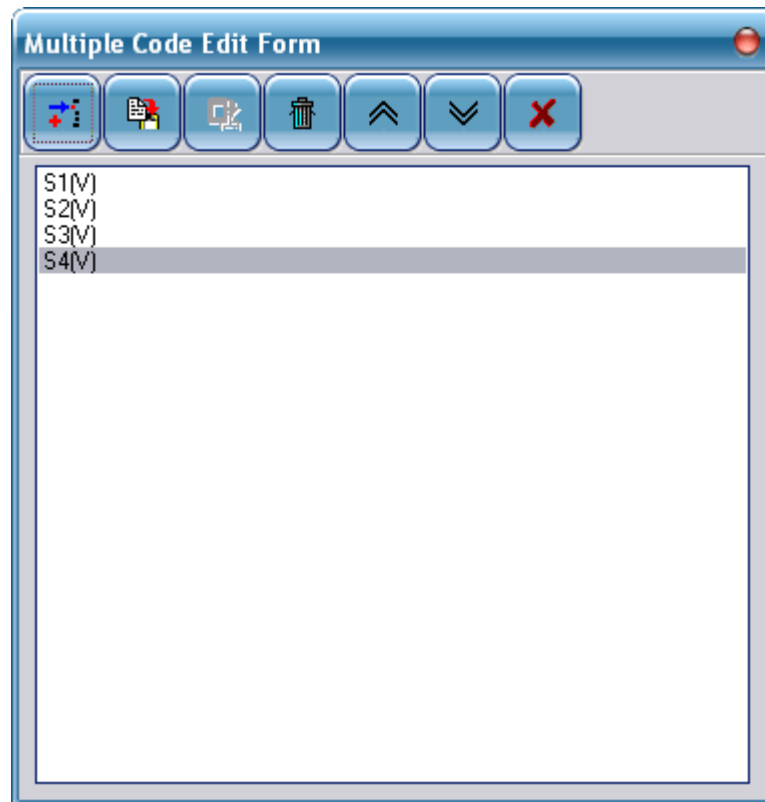
- **Network**

Network on which device resides - consult device driver documentation for further information.

- **Use Global Device/Network**

A jump from another schematic can pass in new Code, Device and Network values. If this box is ticked, these are used in place of the values entered here. This facility enables one schematic to be used for multiple devices.

If a control is to look at different codes when a jump is performed, a list of codes has to be given to the control. To do this, <Right Click> on the '*What To Read*' field. This will show a pop-up menu from which you should select '*Multiple Codes*'. This will display the following window where you can add or remove codes.

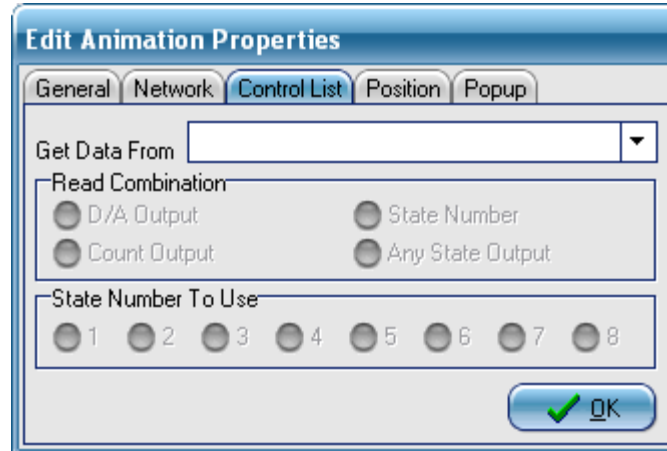


- **Terminal Access**

When ticked, and if the selected driver supports terminal mode the user can <Right Click> on

the control at run time to open the terminal window. Consult device driver documentation for further information.

7.4.7.4 Controllist



- **Get Data From**

This combo box allows you to select from a list of other controls that are on this schematic. If this property is *not* empty, this control will source its data from the selected control **INSTEAD** of from the network.

If the type of the source control is not a combination module, the following properties will be disabled otherwise they are used to select from which output of the combination module to source the data.

- **Read Combination**

If the type of the source control is a combination module, the data can be read from one of several outputs as follows:

- **D/A Output**

Source data from combination module Digital to Analogue output (this is the decimal value calculated from the 8 digital inputs of a combination module).

- **Count Output**

Source data from combination module Count output (this is a count of how many inputs to the combination module are non zero).

- **State Number**

Source data from one of the state condition outputs of a combination module. The state to use is selected with the '*State To Use*' property.

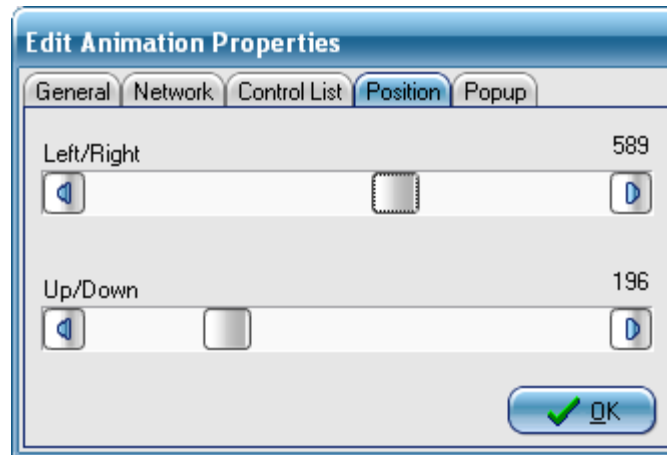
- **Any State Output**

If any of the state condition outputs of a combination module are true, this control will show 1, otherwise it will show 0.

- **State Number To Use**

Which state output to read from a combination module. Only relevant if 'State Number' is selected.

7.4.7.5 Position



- **Left/Right**

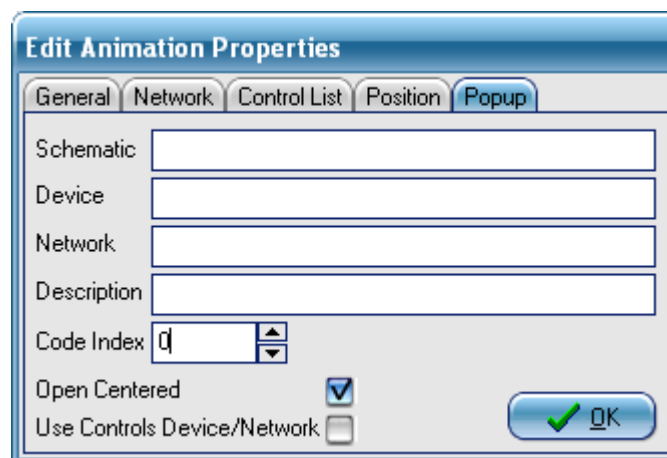
Moving this slider will move the controls horizontal position on the schematic.

- **Up/Down**

Moving this slider will move the controls vertical position on the schematic.

This control automatically sizes to fit the size of a single picture frame (as contained in the loaded picture).

7.4.7.6 Pop-up



- **Schematic**

<Click> here to select the schematic to open as a pop-up when this control is <Right Clicked> on.

- **Device**

A device can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Network**

A network can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Description**

Text entered in this property will be passed to the pop-up schematic and will be used by any static text controls that have their *Use Global Description* property set.

- **Code Index**

If this property is greater than zero this number tells the controls on the pop-up schematic which code to use to retrieve their data (if the controls have multiple codes entered).

- **Open Centered**

If checked the pop-up schematic will open centered on the screen.

- **Use Controls Device/Network**

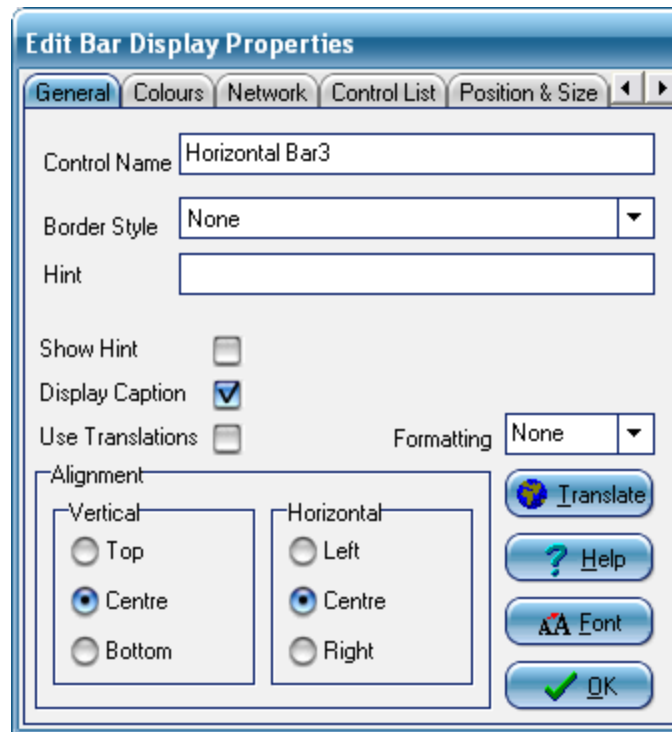
If checked and this control is using a global device/network it will pass it on to the pop-up schematic.

7.4.8 Horizontal Bar

7.4.8.1 Description

The *Bar* controls are used to display a coloured sliding bar that changes with its input value. This can be used to represent such things as tank levels or thermometer readings if overlaid on a suitable background picture.

7.4.8.2 General



- **Control Name**

A unique name to identify this control within the schematic.

- **Border Style**

Selects the type of border that is drawn around the control.

- **Vertical Alignment**

Determines whether text is justified to the top, bottom or centre of the control.

- **Horizontal Alignment**

Determines whether text is justified to the left, right or centre of the control.

- **Font**

Opens a font selection dialog. The selected font is used to display text in the control.

- **Translate**

Opens the translation edit window. This allows you to enter data that controls what the user see's and what is sent to the driver.

For more detailed information see the chapter about the translation editor.

- **Use Translations**

If ticked and translations have been setup, they will be used. If un-ticked, translations will be ignored.

- **Display Caption**

If ticked, the control displays the value in text format as well as a sliding bar colour. When un-ticked, no text is displayed.

- **OK**

Closes the property editor.

- **Help**

Displays the online help for the control.

- **Hint**

Enter text that explains purpose of control to user.

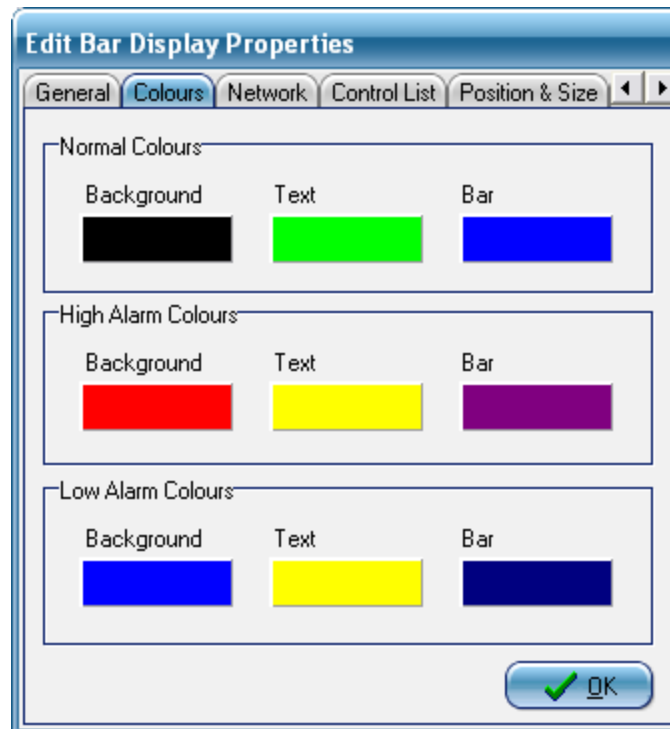
- **Show Hint**

If ticked the hint text will be shown to the user when the mouse pauses over the control.

- **Formatting**

Allows you to select how many decimal places are shown for numeric items.

7.4.8.3 Colours



<Clicking> On a coloured box displays a colour selection dialog.

- **BackGround**

Background colour of control.

- **Text**

Font colour used for displayed text.

- **Bar**

The Colour used to display the sliding bar portion of the control.

- **Normal Colours**

Colours used to display the bar control when the incoming data is within alarm limits.

- **High Alarm Colours**

Colours used to display the bar control when the incoming data is equal to or above the controls high alarm limit.

- **Low Alarm Colours**

Colours used to display the bar control when the incoming data is equal to or below the

controls low alarm limit.

7.4.8.4 Network

- **Device Driver**

Select the device driver from which this control should request its data.

- **What to read (sometimes referred to as code)**

Object to read - consult device driver documentation for further information.

- **Device**

Device to read object from - consult device driver documentation for further information.

- **Network**

Network on which device resides - consult device driver documentation for further information.

- **Access Level**

Security level at which a user must be logged on to be able to adjust the value of the object or to be able to open the terminal window.

- **High Alarm**

If the value received by this control is equal to or above the value entered here, the text display

colours will be changed to those set on the colours tab.

- **Low Alarm**

If the value received by this control is equal to or below the value entered here, the text display colours will be changed to those set on the colours tab.

- **Upper Value**

This property sets the upper limit of the bars display range.

- **Lower Value**

This property sets the lower limit of the bars display range.

- **Tick If Adjustable**

If you wish a user to be able to adjust the value displayed by this control, this box must be ticked.

- **Upper Limit**

If the value is numeric and adjustable, this value sets the upper limit of the users input range.

- **Lower Limit**

If the value is numeric and adjustable, this value sets the lower limit of the users input range.

- **Prefix**

Any text entered into this field will be prepended with a space to the displayed value.

- **Units**

Any text entered into this field will be added with a space to the displayed value. The drop down list contains some standard units.

- **Plot Code**

If the device can log its own data, enter the code here that will retrieve the data for graphing - consult device driver documentation for further information.

- **Password**

Any text entered here is passed to the device driver when an adjustment is carried out - consult device driver documentation for further information.

- **Use Global Device/Network**

A jump from another schematic can pass in new Code, Device and Network values. If this box is ticked, these are used in place of the values entered here. This facility enables one schematic to be used for multiple devices.

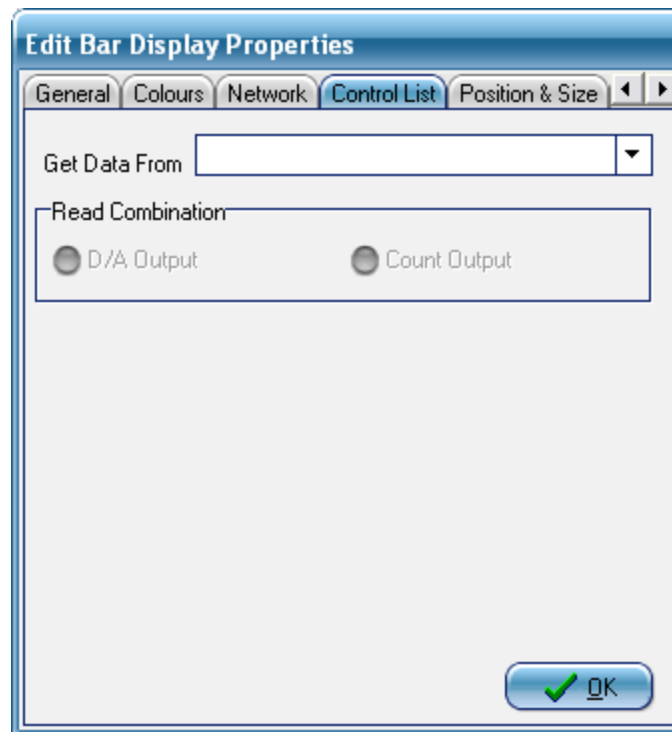
If a control is to look at different codes when a jump is performed, a list of codes has to be given to the control. To do this, <Right Click> on the '*What To Read*' field. This will show a

pop-up menu from which you should select '*Multiple Codes*'. This will display the following window where you can add or remove codes.

- **Terminal Access**

When ticked, and if the selected driver supports terminal mode the user can <Right Click> on the control at run time to open the terminal window. Consult device driver documentation for further information.

7.4.8.5 Control List



- **Get Data From**

This combo box allows you to select from a list of other controls that are on this schematic. If this property is *not* empty, this control will source its data from the selected control **INSTEAD** of from the network.

If the type of the source control is not a combination module, the following properties will be disabled otherwise they are used to select from which output of the combination module to source the data.

- **Read Combination**

If the type of the source control is a combination module, the data can be read from one of several outputs as follows:

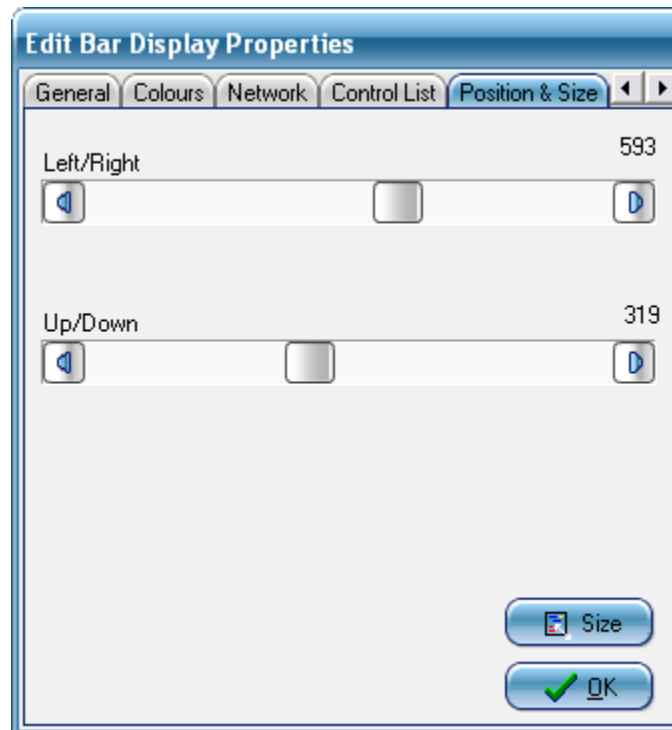
- **D/A Output**

Source data from combination module Digital to Analogue output (this is the decimal value calculated from the 8 digital inputs of a combination module).

- **Count Output**

Source data from combination module Count output (this is a count of how many inputs to the combination module are non zero).

7.4.8.6 Position & Size



- **Left/Right**

Moving this slider will move the controls horizontal position on the schematic.

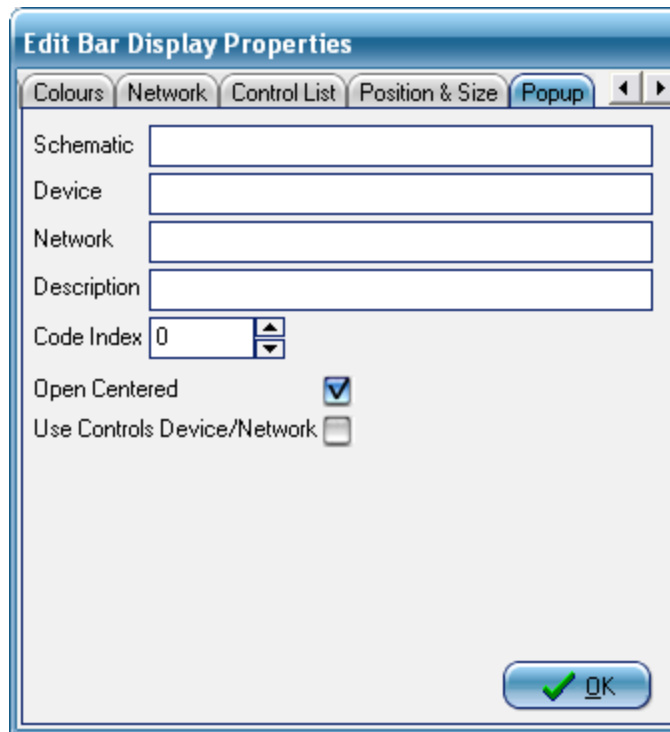
- **Up/Down**

Moving this slider will move the controls vertical position on the schematic.

- **Size**

Pressing this button will change the function of the sliders so that they will re-size the control instead of moving it.

7.4.8.7 Pop-up



- **Schematic**

<Click> here to select the schematic to open as a pop-up when this control is <Right Clicked> on.

- **Device**

A device can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Network**

A network can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Description**

Text entered in this property will be passed to the pop-up schematic and will be used by any static text controls that have their *Use Global Description* property set.

- **Code Index**

If this property is greater than zero this number tells the controls on the pop-up schematic which code to use to retrieve their data (if the controls have multiple codes entered).

- **Open Centered**

If checked the pop-up schematic will open centered on the screen.

- **Use Controls Device/Network**

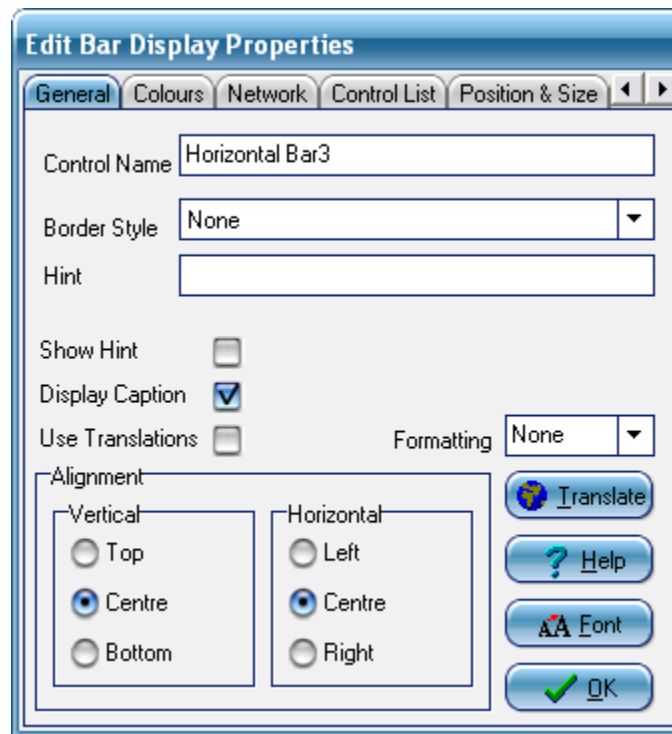
If checked and this control is using a global device/network it will pass it on to the pop-up schematic.

7.4.9 Vertical Bar

7.4.9.1 Description

The *Bar* controls are used to display a coloured sliding bar that changes with its input value. This can be used to represent such things as tank levels or thermometer readings if overlaid on a suitable background picture.

7.4.9.2 General



- **Control Name**

A unique name to identify this control within the schematic.

- **Border Style**

Selects the type of border that is drawn around the control.

- **Vertical Alignment**

Determines whether text is justified to the top, bottom or centre of the control.

- **Horizontal Alignment**

Determines whether text is justified to the left, right or centre of the control.

- **Font**

Opens a font selection dialog. The selected font is used to display text in the control.

- **Translate**

Opens the translation edit window. This allows you to enter data that controls what the user see's and what is sent to the driver.

For more detailed information see the chapter about the translation editor.

- **Display Caption**

If ticked, the control displays the value in text format as well as a sliding bar colour. When un-ticked, no text is displayed.

- **OK**

Closes the property editor.

- **Help**

Displays the online help for the control.

- **Hint**

Enter text that explains purpose of control to user.

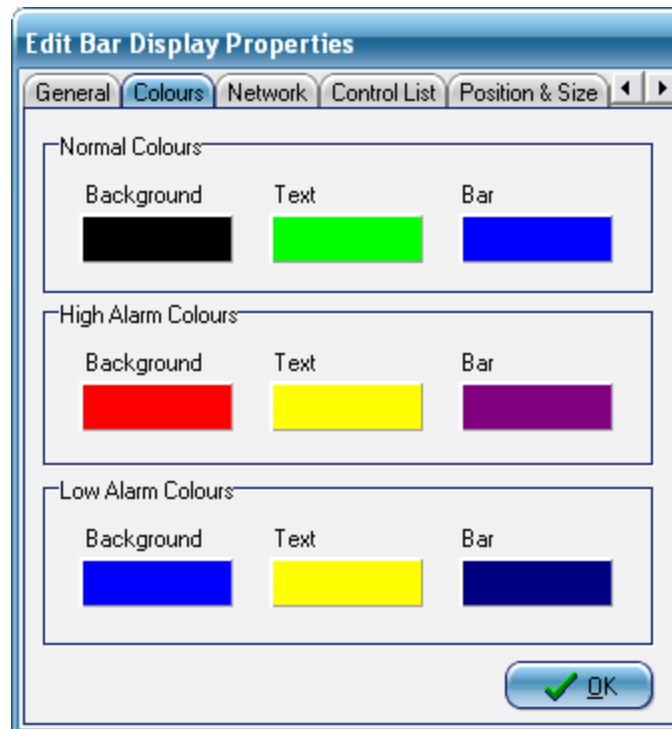
- **Show Hint**

If ticked the hint text will be shown to the user when the mouse pauses over the control.

- **Formatting**

Allows you to select how many decimal places are shown for numeric items.

7.4.9.3 Colours



<Clicking> On a coloured box displays a colour selection dialog.

- **BackGround**

Background colour of control.

- **Text**

Font colour used for displayed text.

- **Bar**

The Colour used to display the sliding bar portion of the control.

- **Normal Colours**

Colours used to display the bar control when the incoming data is within alarm limits.

- **High Alarm Colours**

Colours used to display the bar control when the incoming data is equal to or above the controls high alarm limit.

- **Low Alarm Colours**

Colours used to display the bar control when the incoming data is equal to or below the

controls low alarm limit.

7.4.9.4 Network

- **Device Driver**

Select the device driver from which this control should request its data.

- **What to read (sometimes referred to as code)**

Object to read - consult device driver documentation for further information.

- **Device**

Device to read object from - consult device driver documentation for further information.

- **Network**

Network on which device resides - consult device driver documentation for further information.

- **Access Level**

Security level at which a user must be logged on to be able to adjust the value of the object or to be able to open the terminal window.

- **High Alarm**

If the value received by this control is equal to or above the value entered here, the text display

colours will be changed to those set on the colours tab.

- **Low Alarm**

If the value received by this control is equal to or below the value entered here, the text display colours will be changed to those set on the colours tab.

- **Upper Value**

This property sets the upper limit of the bars display range.

- **Lower Value**

This property sets the lower limit of the bars display range.

- **Tick If Adjustable**

If you wish a user to be able to adjust the value displayed by this control, this box must be ticked.

- **Upper Limit**

If the value is numeric and adjustable, this value sets the upper limit of the users input range.

- **Lower Limit**

If the value is numeric and adjustable, this value sets the lower limit of the users input range.

- **Prefix**

Any text entered into this field will be prepended with a space to the displayed value.

- **Units**

Any text entered into this field will be added with a space to the displayed value. The drop down list contains some standard units.

- **Plot Code**

If the device can log its own data, enter the code here that will retrieve the data for graphing - consult device driver documentation for further information.

- **Password**

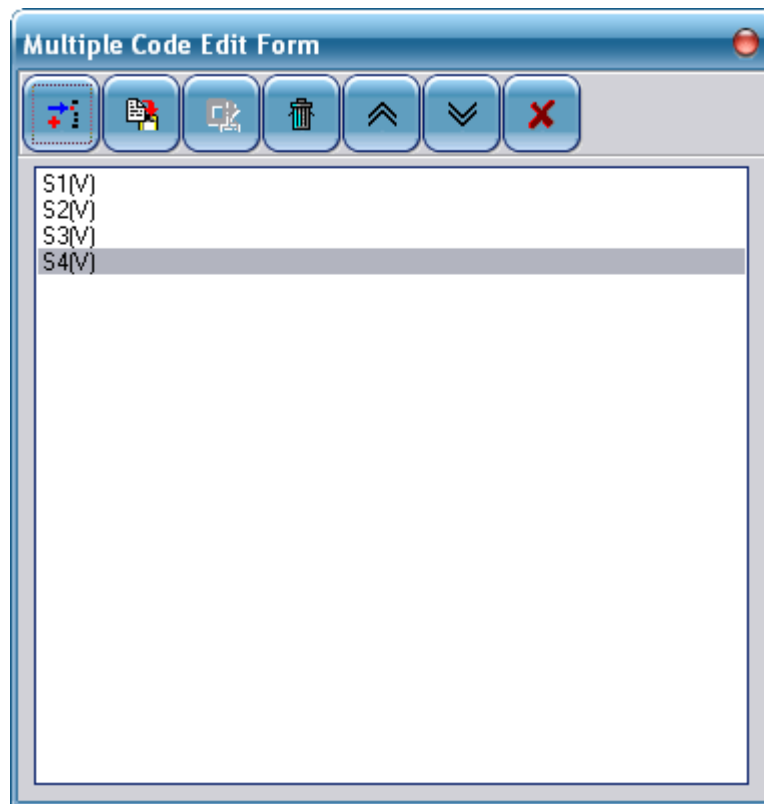
Any text entered here is passed to the device driver when an adjustment is carried out - consult device driver documentation for further information.

- **Use Global Device/Network**

A jump from another schematic can pass in new Code, Device and Network values. If this box is ticked, these are used in place of the values entered here. This facility enables one schematic to be used for multiple devices.

If a control is to look at different codes when a jump is performed, a list of codes has to be given to the control. To do this, <Right Click> on the '*What To Read*' field. This will show a

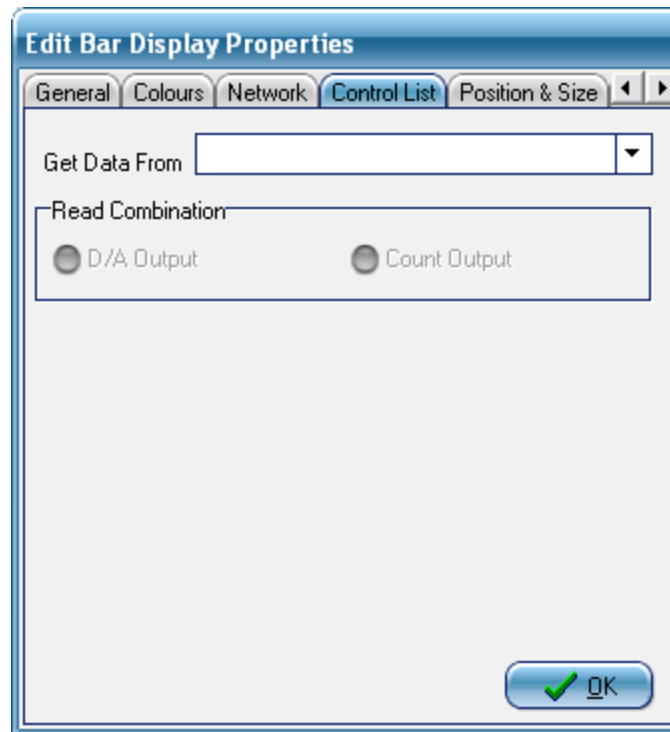
pop-up menu from which you should select '*Multiple Codes*'. This will display the following window where you can add or remove codes.



- **Terminal Access**

When ticked, and if the selected driver supports terminal mode the user can <Right Click> on the control at run time to open the terminal window. Consult device driver documentation for further information.

7.4.9.5 Control List



- **Get Data From**

This combo box allows you to select from a list of other controls that are on this schematic. If this property is *not* empty, this control will source its data from the selected control *INSTEAD* of from the network.

If the type of the source control is not a combination module, the following properties will be disabled otherwise they are used to select from which output of the combination module to source the data.

- **Read Combination**

If the type of the source control is a combination module, the data can be read from one of several outputs as follows:

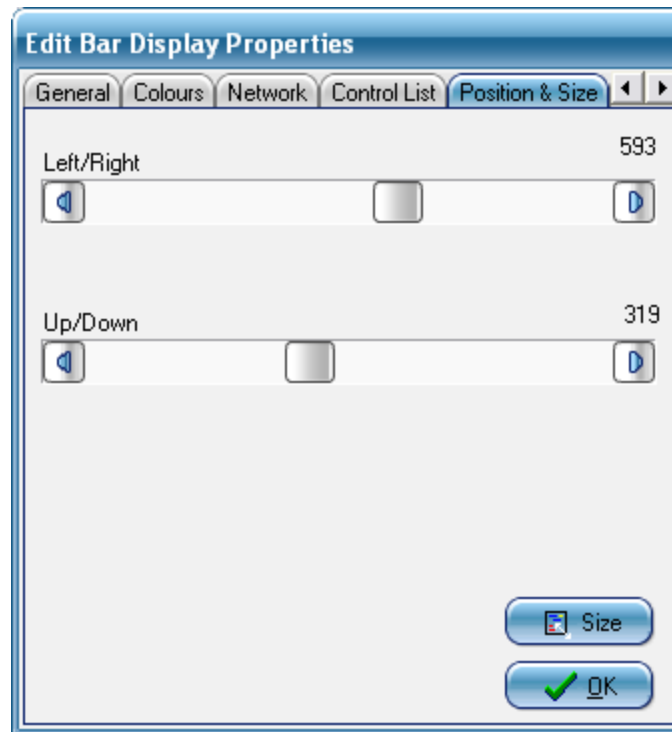
- **D/A Output**

Source data from combination module Digital to Analogue output (this is the decimal value calculated from the 8 digital inputs of a combination module).

- **Count Output**

Source data from combination module Count output (this is a count of how many inputs to the combination module are non zero).

7.4.9.6 Position & Size



- **Left/Right**

Moving this slider will move the controls horizontal position on the schematic.

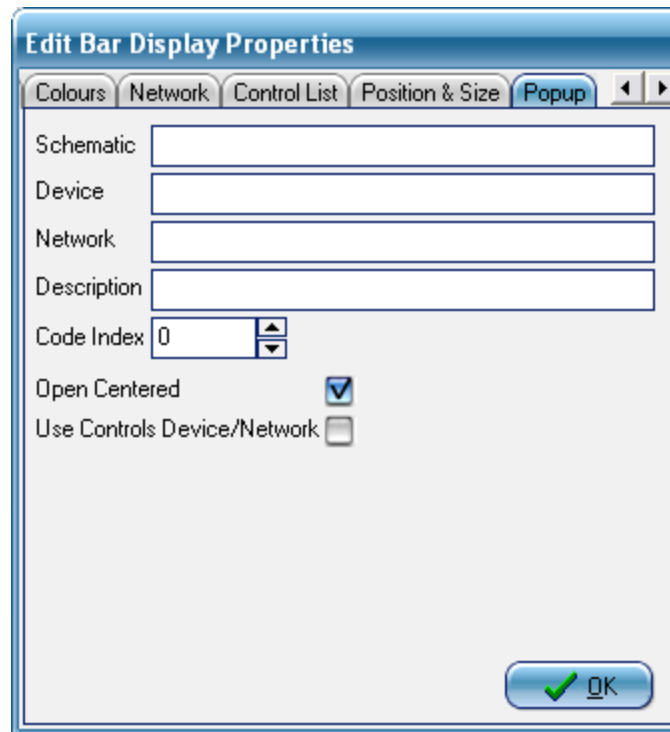
- **Up/Down**

Moving this slider will move the controls vertical position on the schematic.

- **Size**

Pressing this button will change the function of the sliders so that they will re-size the control instead of moving it.

7.4.9.7 Pop-up



- **Schematic**

<Click> here to select the schematic to open as a pop-up when this control is <Right Clicked> on.

- **Device**

A device can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Network**

A network can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Description**

Text entered in this property will be passed to the pop-up schematic and will be used by any static text controls that have their *Use Global Description* property set.

- **Code Index**

If this property is greater than zero this number tells the controls on the pop-up schematic which code to use to retrieve their data (if the controls have multiple codes entered).

- **Open Centered**

If checked the pop-up schematic will open centered on the screen.

- **Use Controls Device/Network**

If checked and this control is using a global device/network it will pass it on to the pop-up schematic.

7.4.10 Button

7.4.10.1 Description

The *Button* Control has several functions that it can perform as listed below:

- Turn something On or Off on a network device.
- Jump to another schematic.
- Display a graph of a *Data Log Template*.
- Run a user supplied VBScript.
- Run a driver specific function.

The button can look like a standard windows button with user selected colours or can have a bitmap loaded to make it look any way the user chooses (ie: like a toggle switch etc).

7.4.10.2 General



- **Control Name**

A unique name to identify this control within the schematic.

- **Border Style**

Selects the type of border that is drawn around the control.

- **Vertical Alignment**

Determines whether text is justified to the top, bottom or centre of the control.

- **Horizontal Alignment**

Determines whether text is justified to the left, right or centre of the control.

- **Font**

Opens a font selection dialog. The selected font is used to display text in the control.

- **OK**

Closes the property editor.

- **Help**

Displays the online help for the control.

- **Picture**

Displays a bitmap selector so that a bitmap that contains a 2 state picture can be loaded. The bitmap selector is discussed in the chapter called "The Bitmap Selector".

The bitmap should consist of 2 equal size picture frames. Here is an example:



- **Clear**

Unloads the current bitmap.

- **Display Picture Transparent**

When ticked this tells the control to display the picture transparently. The control uses the colour of the bottom left pixel as the transparent colour.

If the control is a type that uses multi-frame pictures, each frame must have its bottom left pixel set to the required transparent colour.

- **On**

<Clicking> This shows how the control will look in its on state.

- **Off**

<Clicking> This shows how the control will look in its off state.

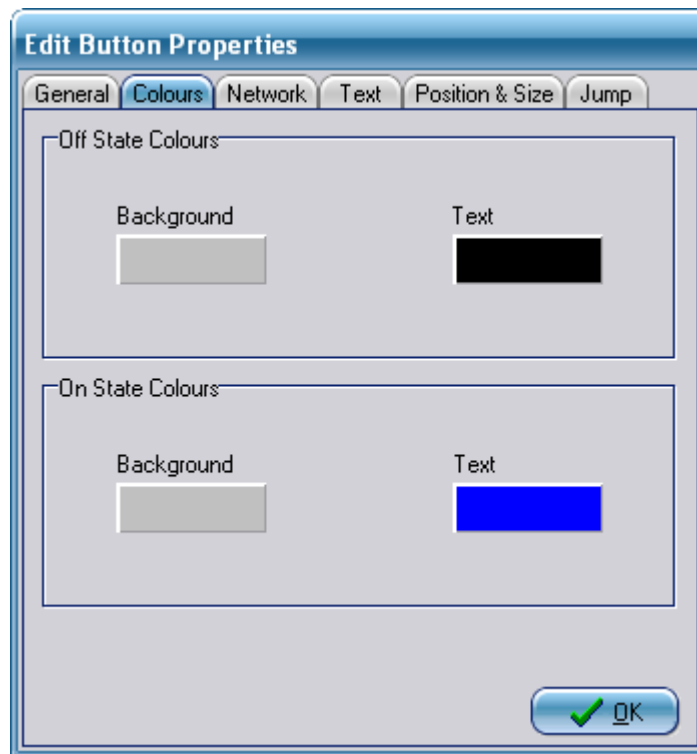
- **Hint**

Enter text that explains purpose of control to user.

- **Show Hint**

If ticked the hint text will be shown to the user when the mouse pauses over the control.

7.4.10.3 Colours



<Clicking> On a coloured box displays a colour selection dialog.

- **Off State Colours**

The colours selected here will be used to display the text when the data received by the control is OFF.

- **On State Colours**

The colours selected here will be used to display the text when the data received by the control is ON.

7.4.10.4 Network

The screenshot shows the 'Edit Button Properties' dialog box with the 'Network' tab selected. The dialog has several tabs: General, Colours, Network, Text, Position & Size, and Jump. The 'Network' tab contains the following fields and options:

- Device Driver: A dropdown menu with 'NotUsed' selected.
- What to read: A text input field.
- Device: A text input field.
- Network: A text input field.
- Access Level: A text input field with '1' entered.
- Plot Code: A text input field.
- TimeZone Code: A text input field.
- Time Periods: A spinner box with '1' and up/down arrows.
- On Value: A text input field.
- Off Value: A text input field.
- Terminal Access:
- Use Global Device:
- Use Global Network:
- OK button: A button with a green checkmark and the text 'OK'.

- **Device Driver**

Select the device driver from which this control should request its data.

- **What to read (sometimes referred to as code)**

Object to read - consult device driver documentation for further information.

- **Device**

Device to read object from - consult device driver documentation for further information.

- **Network**

Network on which device resides - consult device driver documentation for further information.

- **On Value**

By default the button accepts 1 as the on value. Some drivers can not support this and need a text value. Whatever you enter here will be used as the on value instead.

- **Off Value**

By default the button accepts 0 as the off value. Some drivers can not support this and need a text value. Whatever you enter here will be used as the off value instead.

- **Access Level**

Security level at which a user must be logged on to be able to adjust the value of the object or to be able to open the terminal window.

- **Plot Code**

If the device can log its own data, enter the code here that will retrieve the data for graphing - consult device driver documentation for further information.

- **TimeZone Code**

If the device driver supports Time Profiles, enter the code here that will retrieve the time data. When time data is received, a window will open showing the start stop times for each day of the week. Consult device driver documentation for further information.

- **Time Periods**

If a *TimeZone* code is entered, this field sets how many on/off periods there are in each day. Consult device driver documentation for further information.

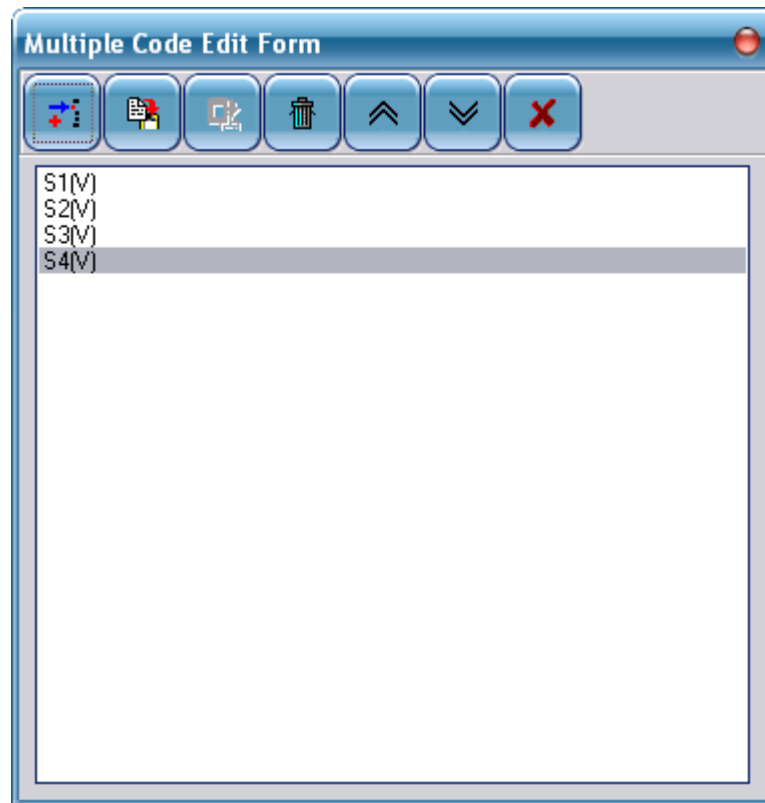
- **Password**

Any text entered here is passed to the device driver when an adjustment is carried out - consult device driver documentation for further information.

- **Use Global Device/Network**

A jump from another schematic can pass in new Code, Device and Network values. If this box is ticked, these are used in place of the values entered here. This facility enables one schematic to be used for multiple devices.

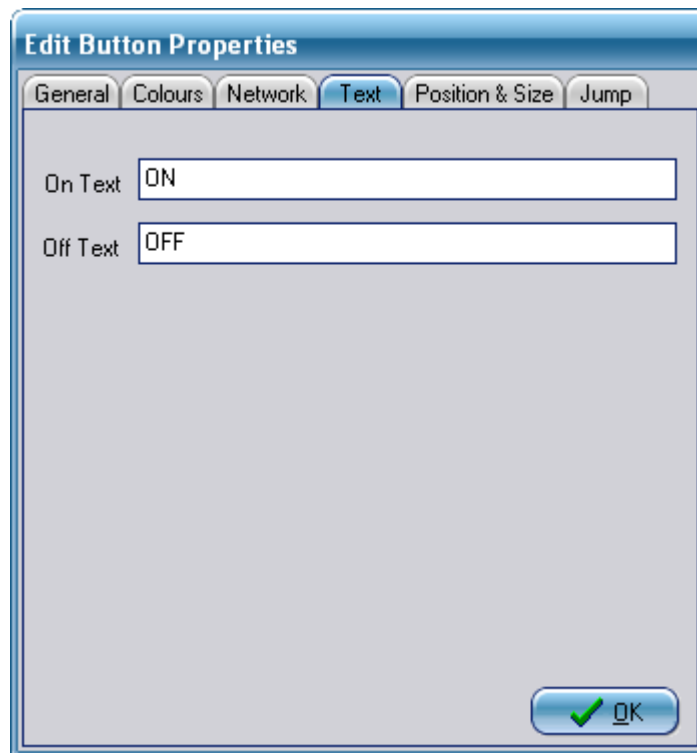
If a control is to look at different codes when a jump is performed, a list of codes has to be given to the control. To do this, <Right Click> on the '*What To Read*' field. This will show a pop-up menu from which you should select '*Multiple Codes*'. This will display the following window where you can add or remove codes.



- **Terminal Access**

When ticked, and if the selected driver supports terminal mode the user can <Right Click> on the control at run time to open the terminal window. Consult device driver documentation for further information.

7.4.10.5 Text



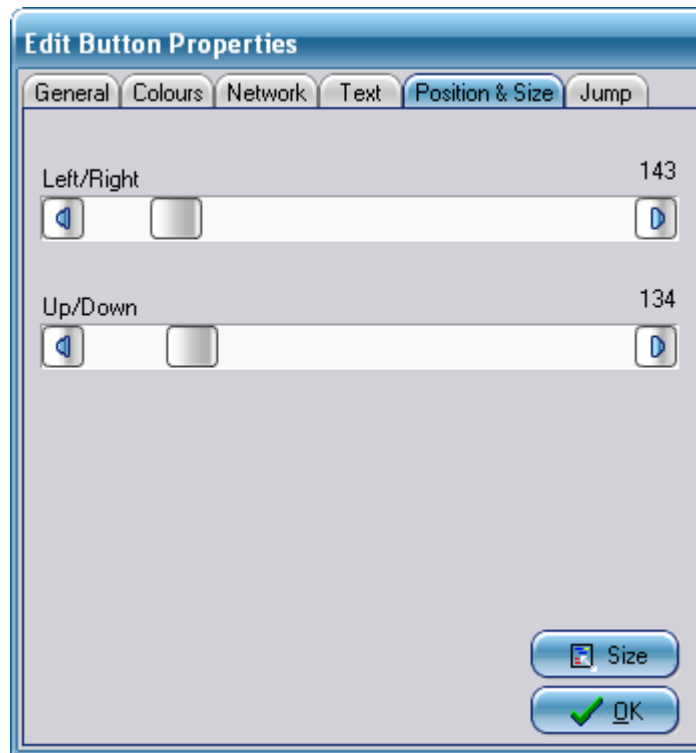
- **On Text**

Enter the text that will be displayed when the incoming data is non zero or ON.

- **Off Text**

Enter the text that will be displayed when the incoming data is zero or OFF.

7.4.10.6 Position & Size



- **Left/Right**

Moving this slider will move the controls horizontal position on the schematic.

- **Up/Down**

Moving this slider will move the controls vertical position on the schematic.

- **Size**

Pressing this button will change the function of the sliders so that they will re-size the control instead of moving it.

7.4.10.7 Jump

The screenshot shows the 'Edit Button Properties' dialog box with the 'Jump' tab selected. The dialog has a title bar and several tabs: 'General', 'Colours', 'Network', 'Text', 'Position & Size', and 'Jump'. The 'Jump' tab contains the following fields and controls:

- 'Jump To': A text box containing 'Test1'.
- 'Device': An empty text box.
- 'Network': An empty text box.
- 'Description': An empty text box.
- 'Code Index': A spin box set to '0'.
- 'Data for Driver Specific Function': A section containing three text boxes for 'Int Data', 'Float Data', and 'String Data', all of which are empty.
- 'Can Run Remotely': A checkbox that is currently unchecked.
- 'Support Files': A button.
- 'OK': A button with a green checkmark.

- **Jump To**

A button can be configured to perform the following actions:

Display a graph of a local data log.

Jump to another schematic (with the option of passing in new device, network and code information).

Open another schematic as a Pop-up (with the option of passing in new device, network and code information).

Run a VBScript procedure.

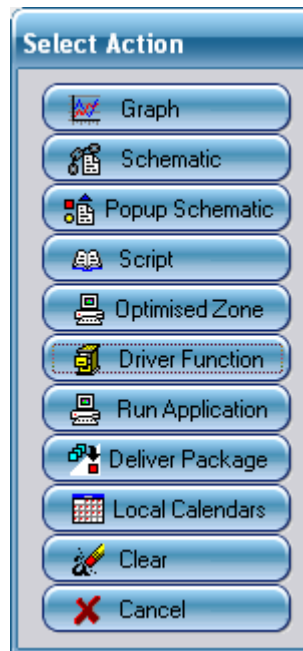
Open an Optimised Time Zone (only if the OZM 2000 Plug-In is installed).

Run a driver specific function.

Run another application.

Deliver a set of packaged files/apps to a remote user.

When the *Jump To* field is <Clicked> the following window is displayed:



This allows you to select the action that the button will perform and will lead you through choosing the item to jump to. Clear will clear the *Jump To* property.

- **Device**

If this button is set to jump to another schematic, a device can be entered here that will be passed to all controls on the schematic to be used. Consult device driver documentation for further information.

- **Network**

If this button is set to jump to another schematic, a network can be entered here that will be passed to all controls on the schematic to be used. Consult device driver documentation for further information.

- **Description**

If this button is set to jump to another schematic, text entered in this property will be passed to the new schematic and will be used by any static text controls that have their *Use Global Description* property set.

- **Code Index**

If this property is greater than zero and the button is to jump to another schematic, this number tells the controls which code to use to retrieve their data (if the controls have multiple codes entered).

- **Data For Driver Specific Function**

This field is just for reference. It shows what will be passed to a driver specific function.

- **Can Run Remotely**

If the function being performed by the button can be performed by a PC logged in remotely tick this option.

- **Support Files**

If the function being performed by this button can be performed by a PC logged in remotely and support files will be required at the remote machine, use this button to select the required support packages. Support packages are created and maintained by the Internet Kit (NDS 2000). See the help file for further information.

7.4.11 Hot Spot

7.4.11.1 Description

**** THE HOT SPOT IS RETAINED FOR BACKWARD COMPATABILITY ****
**** WE RECOMMEND USING AN INVISIBLE BUTTON ****

The *Hot Spot* Control has several functions that it can perform as listed below:

Jump to another schematic.
Display a graph of a *Data Log Template*.
Run a user supplied VBScript.
Run a driver specific function.

The Hot Spot is an invisible control at runtime and is generally placed over some specific part of the schematics background picture.

7.4.11.2 General

Edit Hotspot Properties

General Position & Size

Jump To

Device

Network

Description

Code Index

Data for Driver Specific Function

Int Data

Float Data

String Data

Can Run Remotely

- **Jump To**

A Hot Spot can be configured to perform the following actions:

Display a graph of a local data log.

Jump to another schematic (with the option of passing in new device, network and code information).

Open another schematic as a Pop-up (with the option of passing in new device, network and code information).

Run a VBScript procedure.

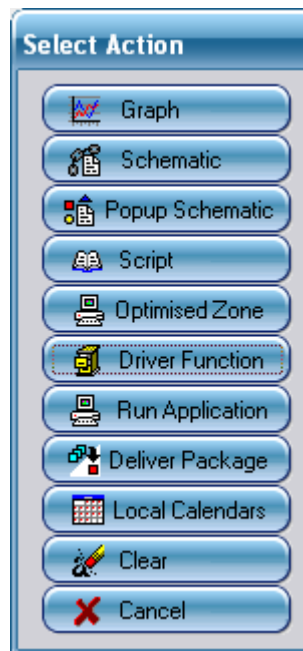
Open an Optimised Time Zone (only if the OZM 2000 Plug-In is installed).

Run a driver specific function.

Run another application.

Deliver a set of packaged files/apps to a remote user.

When the *Jump To* field is <Clicked> the following window is displayed:



This allows you to select the action that the button will perform and will lead you through choosing the item to jump to. Clear will clear the *Jump To* property.

- **Device**

If this Hot Spot is set to jump to another schematic, a device can be entered here that will be passed to all controls on the schematic to be used. Consult device driver documentation for further information.

- **Network**

If this Hot Spot is set to jump to another schematic, a network can be entered here that will be passed to all controls on the schematic to be used. Consult device driver documentation for further information.

- **Description**

If this Hot Spot is set to jump to another schematic, text entered in this property will be passed to the new schematic and will be used by any static text controls that have their *Use Global Description* property set.

- **Code Index**

If this property is greater than zero and the Hot Spot is to jump to another schematic, this number tells the controls which code to use to retrieve their data (if the controls have multiple codes entered).

- **Data For Driver Specific Function**

This field is just for reference. It shows what will be passed to a driver specific function.

- **OK**

Closes the property editor.

- **Help**

Displays the online help for the control.

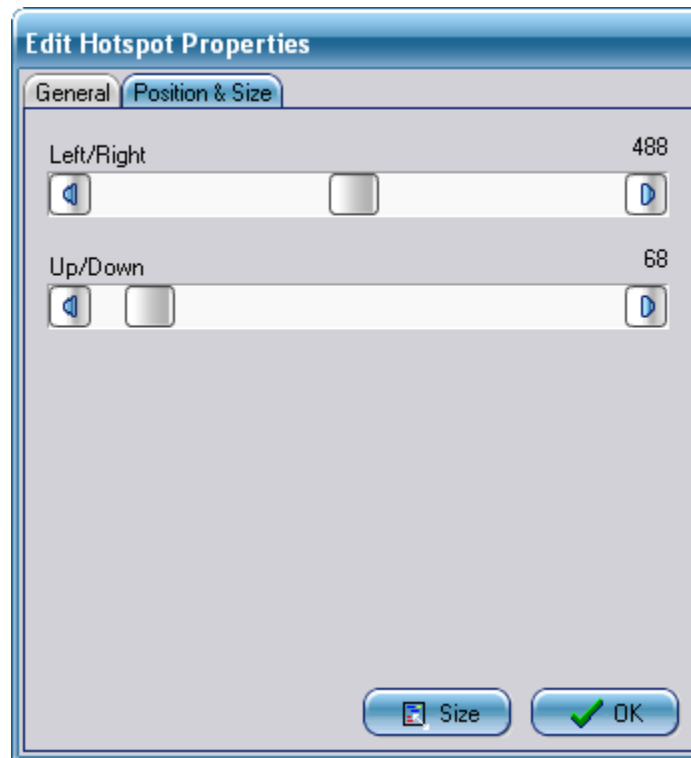
- **Can Run Remotely**

If the function being performed by the button can be performed by a PC logged in remotely tick this option.

- **Support Files**

If the function being performed by this button can be performed by a PC logged in remotely and support files will be required at the remote machine, use this button to select the required support packages. Support packages are created and maintained by the Internet Kit (NDS 2000). See the file for further information.

7.4.11.3 Position & Size



- **Left/Right**

Moving this slider will move the controls horizontal position on the schematic.

- **Up/Down**

Moving this slider will move the controls vertical position on the schematic.

- **Size**

Pressing this button will change the function of the sliders so that they will re-size the control instead of moving it.

7.4.12 Combination

7.4.12.1 Description

The *Combination* control is a powerful logic module.

The control has eight digital inputs which source their data from other controls on the schematic. Any non zero value read by an input is treated as the ON state and any zero value is treated as the OFF state.

The control has several different types of output, all of which are calculated from the inputs. The available outputs are:

D to A Output

This output treats the eight inputs as a binary number and converts them to their decimal equivalent.

Count Output

This output is a count of how many of the inputs are in the ON state.

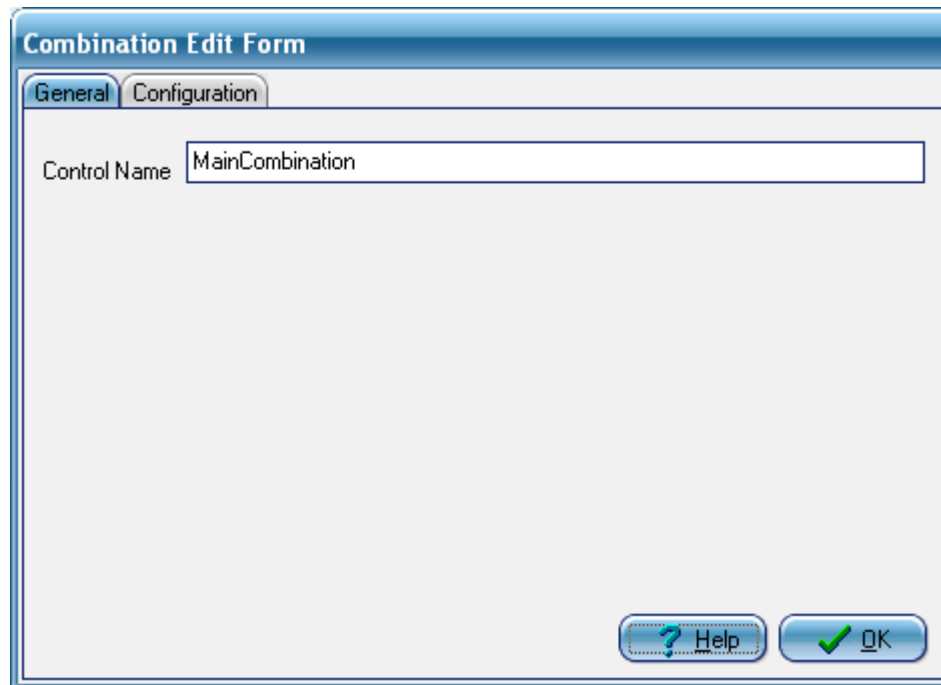
Numbered State Output

Described in the Config section.

Any State Output

Described in the Config section.

7.4.12.2 General



- **Control Name**

A unique name to identify this control within the schematic.

- **OK**

Closes the property editor.

- **Help**

Displays the online help for the control.

7.4.12.3 Configuration

	Data Source	States	Enable
		1 2 3 4 5 6 7 8	
1	On Off Key	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Chiller1 State	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/>
3		<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/>
4		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>
5		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>
6		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>
7		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>
8		<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>

- **Data Source 1 to 8**

Select which control each input reads its data from. Not every input has to be used.

- **States**

Each horizontal row equates to what condition the inputs must be in for this state output to be true.

- **Enable**

Determines whether the adjacent state condition should be evaluated. If not ticked the state output will not be calculated and will always equal false.

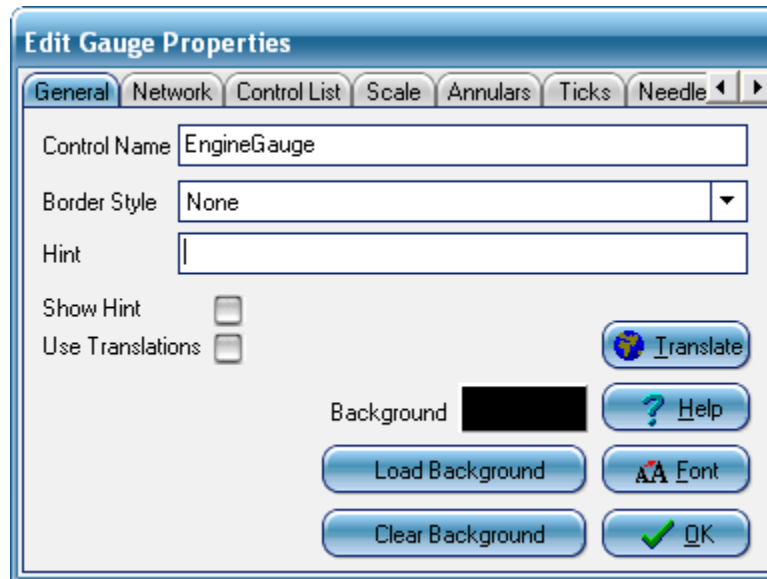
The *Any State* output will be true if any of the enabled state outputs are true.

7.4.13 Gauge

7.4.13.1 Description

The *Gauge* control provides another way to present a value to a user. A background picture can be loaded to make the control look like its real life counterpart and the scale, annulars, ticks and needle can all be modified to suit the required look and feel.

7.4.13.2 General



- **Control Name**

A unique name to identify this control within the schematic.

- **Bevel Style**

Selects the type of border that is drawn around the control.

- **Background**

If no background bitmap is loaded, this colour is used to draw behind the dial area of the control.

- **Load Background**

This will open a bitmap selector to enable a picture to be loaded that will display behind the dial area of the control.

- **Clear Background**

This will unload the background picture.

- **Font**

Opens a font selection dialog. The selected font is used to display text in the control.

- **Translate**

Opens the translation edit window. This allows you to enter data that controls what the user see's and what is sent to the driver.

For more detailed information see the chapter about the translation editor.

- **Use Translations**

If ticked and translations have been setup, they will be used. If un-ticked, translations will be ignored.

- **OK**

Closes the property editor.

- **Help**

Displays the online help for the control.

- **Hint**

Enter text that explains purpose of control to user.

- **Show Hint**

If ticked the hint text will be shown to the user when the mouse pauses over the control.

7.4.13.3 Network

The screenshot shows the 'Edit Gauge Properties' dialog box with the 'Network' tab selected. The dialog has several input fields and checkboxes. The 'Device Driver' field is set to 'TestDriver'. The 'What to read', 'Device', and 'Network' fields are empty. The 'Units' field is empty with a dropdown arrow. The 'Plot Code' field is empty. There are four checkboxes: 'Use Global Device' (checked), 'Terminal Access' (checked), 'Use Global Network' (checked), and 'Use Global Device' (unchecked). An 'OK' button with a green checkmark is at the bottom right.

- **Device Driver**

Select the device driver from which this control should request its data.

- **What to read (sometimes referred to as code)**

Object to read - consult device driver documentation for further information.

- **Device**

Device to read object from - consult device driver documentation for further information.

- **Network**

Network on which device resides - consult device driver documentation for further information.

- **Units**

Any text entered into this field will be added with a space to the displayed value. The drop down list contains some standard units.

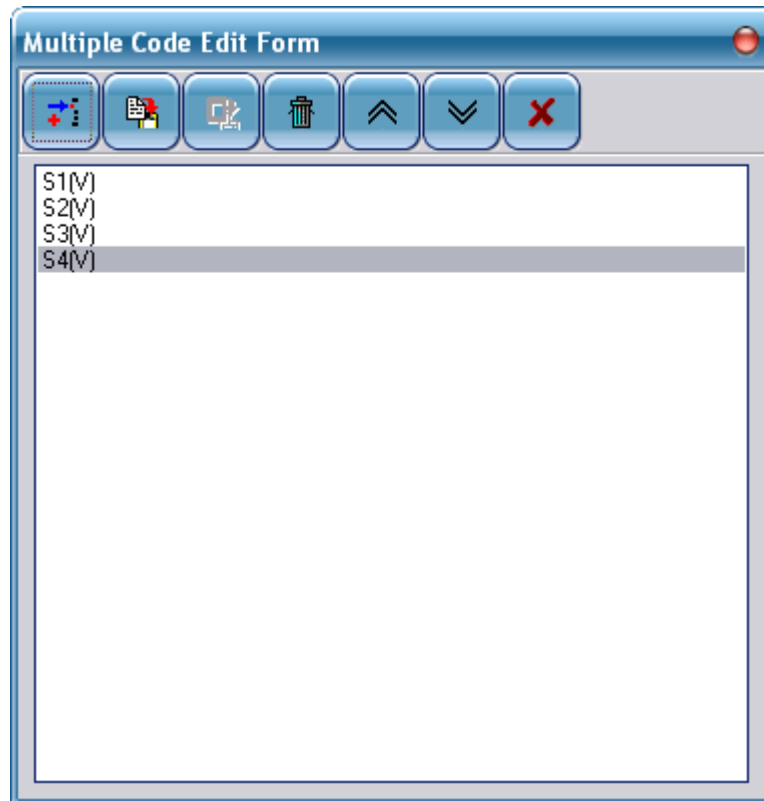
- **Plot Code**

If the device can log its own data, enter the code here that will retrieve the data for graphing - consult device driver documentation for further information.

- **Use Global Device/Network**

A jump from another schematic can pass in new Code, Device and Network values. If this box is ticked, these are used in place of the values entered here. This facility enables one schematic to be used for multiple devices.

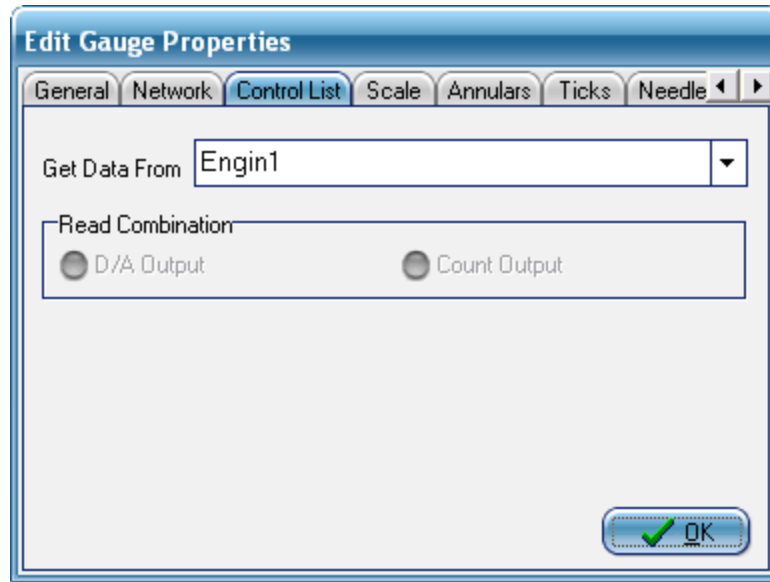
If a control is to look at different codes when a jump is performed, a list of codes has to be given to the control. To do this, <Right Click> on the '*What To Read*' field. This will show a pop-up menu from which you should select '*Multiple Codes*'. This will display the following window where you can add or remove codes.



- **Terminal Access**

When ticked, and if the selected driver supports terminal mode the user can <Right Click> on the control at run time to open the terminal window. Consult device driver documentation for further information.

7.4.13.4 Control List



- **Get Data From**

This combo box allows you to select from a list of other controls that are on this schematic. If this property is *not* empty, this control will source its data from the selected control **INSTEAD** of from the network.

If the type of the source control is not a combination module, the following properties will be disabled otherwise they are used to select from which output of the combination module to source the data.

- **Read Combination**

If the type of the source control is a combination module, the data can be read from one of several outputs as follows:

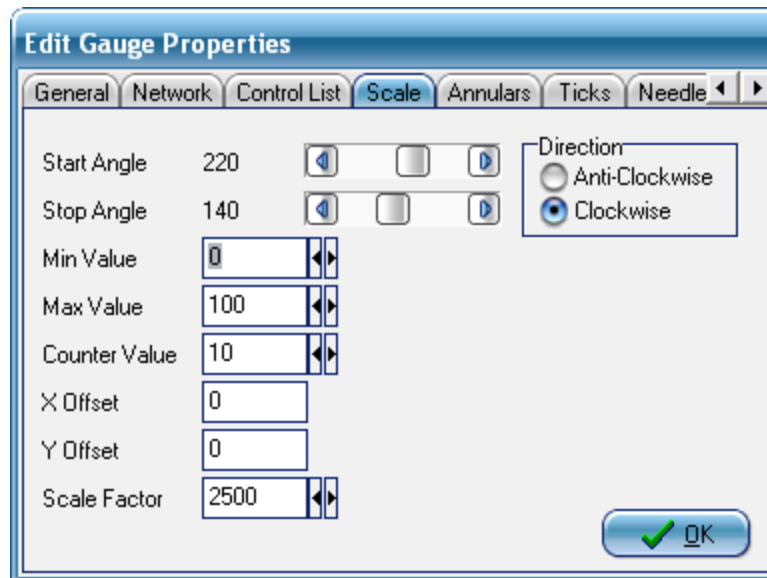
- **D/A Output**

Source data from combination module Digital to Analogue output (this is the decimal value calculated from the 8 digital inputs of a combination module).

- **Count Output**

Source data from combination module Count output (this is a count of how many inputs to the combination module are non zero).

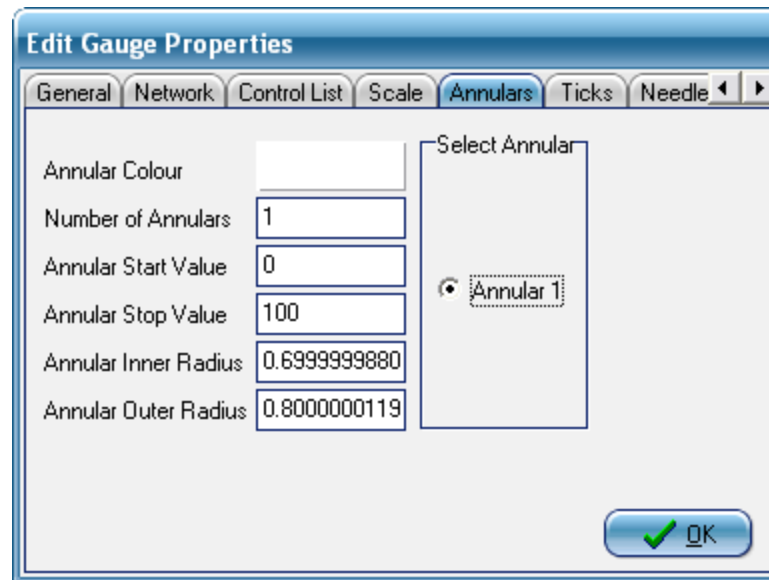
7.4.13.5 Scale



- **Start Angle**
Angle for scale start position.
- **Stop Angle**
Angle for scale stop position.
- **Min Value**
Starting value of scale.
- **Max Value**
End value of scale.
- **Counter Value**
Step value for major tick marks.
- **X Offset**
Horizontal offset of gauge within its window area.
- **Y Offset**
Vertical offset of gauge within its window area.
- **Scale Factor**
Alters the size of gauge relative to its window area.
- **Direction**

Which direction the gauge operates in.

7.4.13.6 Annulars



- **Number Of Annulars**

How many annulars this gauge is to have (Maximum 6).

- **Select Annular**

Number of annular to work with.

- **Annular Start Value**

At what value the currently selected annular will start.

- **Annular Stop Value**

At what value the currently selected annular will stop.

- **Annular Inner Radius**

What the inside diameter of the selected annular will be as a percentage of the overall gauge window size.

- **Annular Outer Radius**

What the outer diameter of the selected annulars will be as a percentage of the overall gauge window size.

- **Annular Colour**

What Colour to use for the selected annular.

7.4.13.7 Ticks

Edit Gauge Properties

General Network Control List Scale Annulars **Ticks** Needle

Number of Ticks: 1

Tick Colour: []

Tick Label Colour: []

Select Tick: Tic 1

Show Label: False True

Tick Adjuster: 0

Tick Inner Radius: 0.69999

Tick Outer Radius: 0.85000

Tick Label Radius: 1

Tick Width: 0.05000

Tick Pen Width: 1

Tick Space: 2

Tick Style: Line

OK

- **Number Of Ticks**

How many tick scales to use.

- **Select Tick**

Select tick set to work with.

- **Tick Adjuster**

Adjusts gap between major tick marks.

- **Tick Inner Radius**

What the inside diameter of the selected tick set will be as a percentage of the overall gauge window size.

- **Tick Outer Radius**

What the outside diameter of the selected tick set will be as a percentage of the overall gauge window size.

- **Tick Label Radius**

What the inside diameter of the selected tick set labels will be as a percentage of the overall gauge window size.

- **Tick Pen Width**

How thick to make the tick marks.

- **Tick Space**

Spacing between minor ticks.

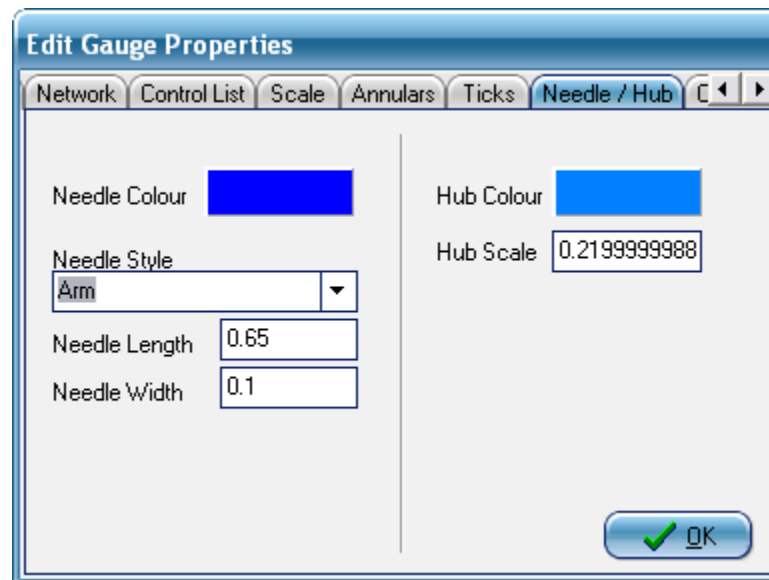
- **Tick Style**

Shape of tick marks.

- **Show Labels**

Whether to show tick labels.

7.4.13.8 Needle/Hub



- **Needle Length**

What the length of the needle will be as a percentage of the overall gauge window size.

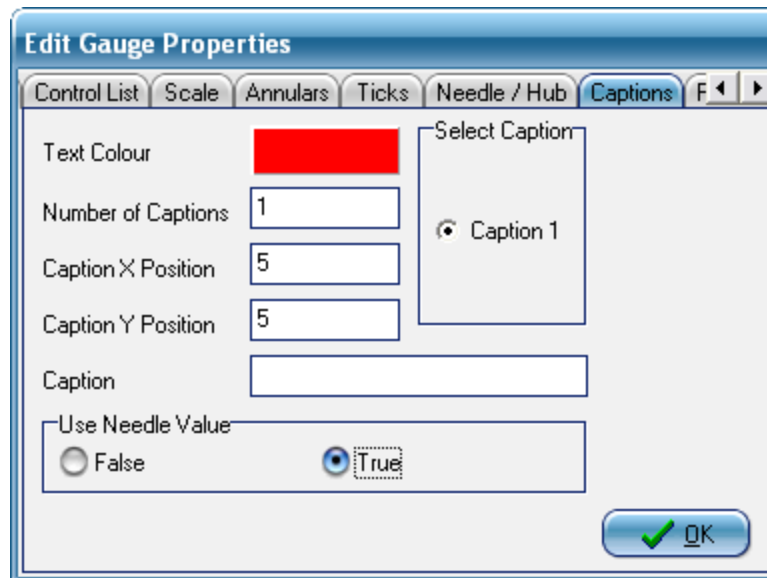
- **Hub Scale**

What the diameter of the hub will be as a percentage of the overall gauge window size.

- **Needle Width**

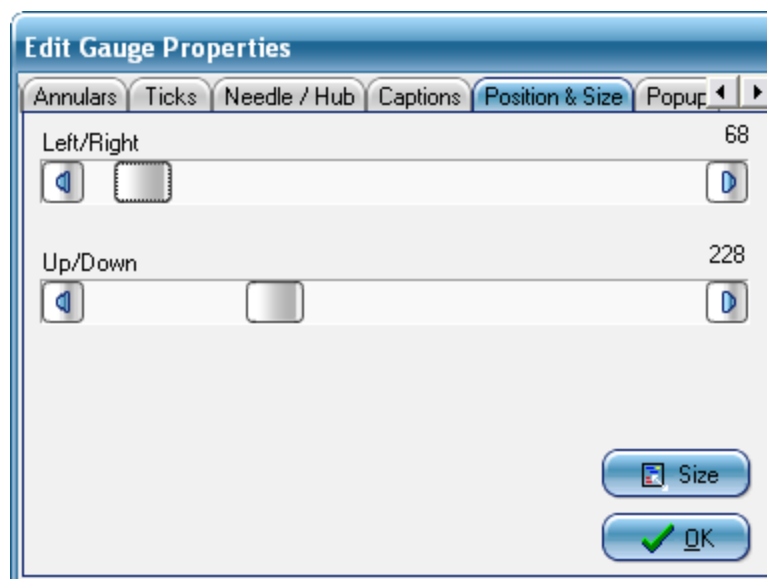
Thickness of the needle.

7.4.13.9 Captions



A *Gauge* control can display up to four individual captions which can be positioned anywhere on the controls surface.

7.4.13.10 Position & Size



- **Left/Right**

Moving this slider will move the controls horizontal position on the schematic.

- **Up/Down**

Moving this slider will move the controls vertical position on the schematic.

- **Size**

Pressing this button will change the function of the sliders so that they will re-size the control instead of moving it.

7.4.13.11 Pop-up

The image shows a software dialog box titled "Edit Gauge Properties". It has five tabs: "Ticks", "Needle / Hub", "Captions", "Position & Size", and "Popup". The "Popup" tab is selected. The dialog contains the following fields and controls:

- Schematic: [Text Input Field]
- Device: [Text Input Field]
- Network: [Text Input Field]
- Description: [Text Input Field]
- Code Index: [Spinner Box] (value: 0)
- Open Centered:
- Use Controls Device/Network:
- OK button: [Green Checkmark] OK

- **Schematic**

<Click> here to select the schematic to open as a pop-up when this control is <Right Clicked> on.

- **Device**

A device can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Network**

A network can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Description**

Text entered in this property will be passed to the pop-up schematic and will be used by any static text controls that have their *Use Global Description* property set.

- **Code Index**

If this property is greater than zero this number tells the controls on the pop-up schematic which code to use to retrieve their data (if the controls have multiple codes entered).

- **Open Centered**

If checked the pop-up schematic will open centered on the screen.

- **Use Controls Device/Network**

If checked and this control is using a global device/network it will pass it on to the pop-up schematic.

7.4.14 State Text

7.4.14.1 Description

The *State Text* control is an object that is used to read data from a device and then display a piece of text to describe the value of the data.

Which string displayed is dependent on the data received by the control. For example, if the incoming data were to be 3 then string 3 would be displayed. If the incoming data were to be 1 then string 1 would be displayed.

This control can be used to great effect with the *Combination* control to monitor multiple digital values that may describe whether a pump is running, stopped or failed.

7.4.14.2 General

Edit State Text Properties

General Network Control List Position & Size Text Colours Popup

Control Name: State Text12

Border Style: None

Hint:

Show Hint

Display Transparent

Use Translations

Alignment

Vertical: Top Centre Bottom

Horizontal: Left Centre Right

Translate Help Font OK

- **Control Name**

A unique name to identify this control within the schematic.

- **Border Style**

Selects the type of border that is drawn around the control.

- **Vertical Alignment**

Determines whether text is justified to the top, bottom or centre of the control.

- **Horizontal Alignment**

Determines whether text is justified to the left, right or centre of the control.

- **Font**

Opens a font selection dialog. The selected font is used to display text in the control.

- **Translate**

Opens the translation edit window. This allows you to enter data that controls what the user see's and what is sent to the driver.

For more detailed information see the chapter about the translation editor.

- **Use Translations**

If ticked and translations have been setup, they will be used. If un-ticked, translations will be ignored.

- **OK**

Closes the property editor.

- **Help**

Displays the online help for the control.

- **Display Transparent**

If ticked, hides the background of the control in run mode.

- **Hint**

Enter text that explains purpose of control to user.

- **Show Hint**

If ticked the hint text will be shown to the user when the mouse pauses over the control.

7.4.14.3 Network

The screenshot shows a dialog box titled "Edit State Text Properties" with several tabs: "General", "Network", "Control List", "Position & Size", "Text", "Colours", and "Popup". The "Network" tab is selected. The dialog contains the following fields and options:

- Device Driver:** A dropdown menu with "TestDriver" selected.
- What to read:** An empty text input field.
- Device:** An empty text input field.
- Network:** An empty text input field.
- High Alarm:** A text input field containing "101".
- Low Alarm:** A text input field containing "-101".
- Use Global Device:** An unchecked checkbox.
- Use Global Network:** An unchecked checkbox.
- Terminal Access:** A checked checkbox.
- OK:** A button with a green checkmark icon.

- **Device Driver**

Select the device driver from which this control should request its data.

- **What to read (sometimes referred to as code)**

Object to read - consult device driver documentation for further information.

- **Device**

Device to read object from - consult device driver documentation for further information.

- **Network**

Network on which device resides - consult device driver documentation for further information.

- **High Alarm**

If the value received by this control is equal to or above the value entered here, the text display colours will be changed to those set on the colours tab.

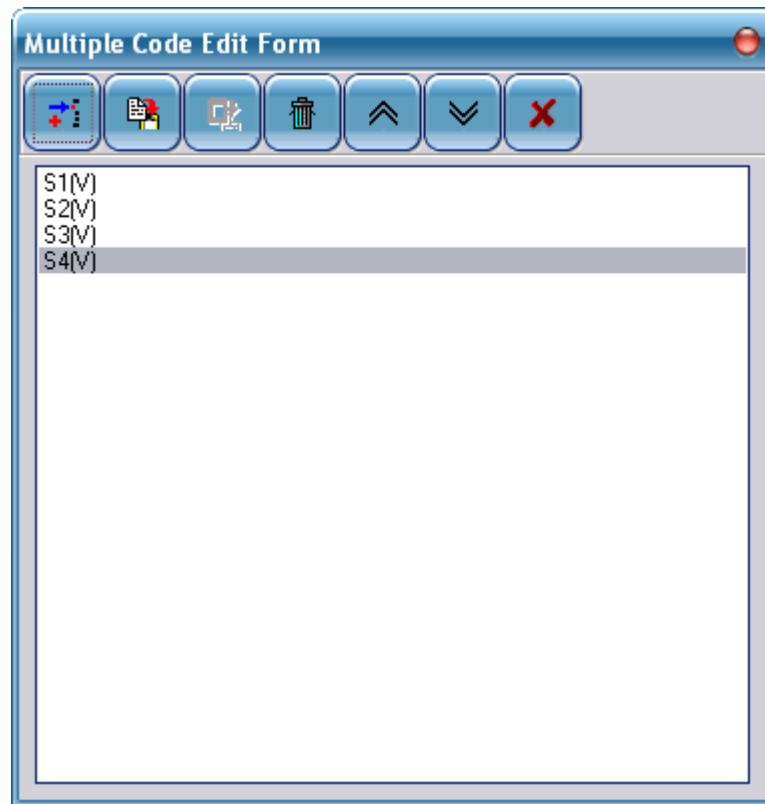
- **Low Alarm**

If the value received by this control is equal to or below the value entered here, the text display colours will be changed to those set on the colours tab.

- **Use Global Device/Network**

A jump from another schematic can pass in new Code, Device and Network values. If this box is ticked, these are used in place of the values entered here. This facility enables one schematic to be used for multiple devices.

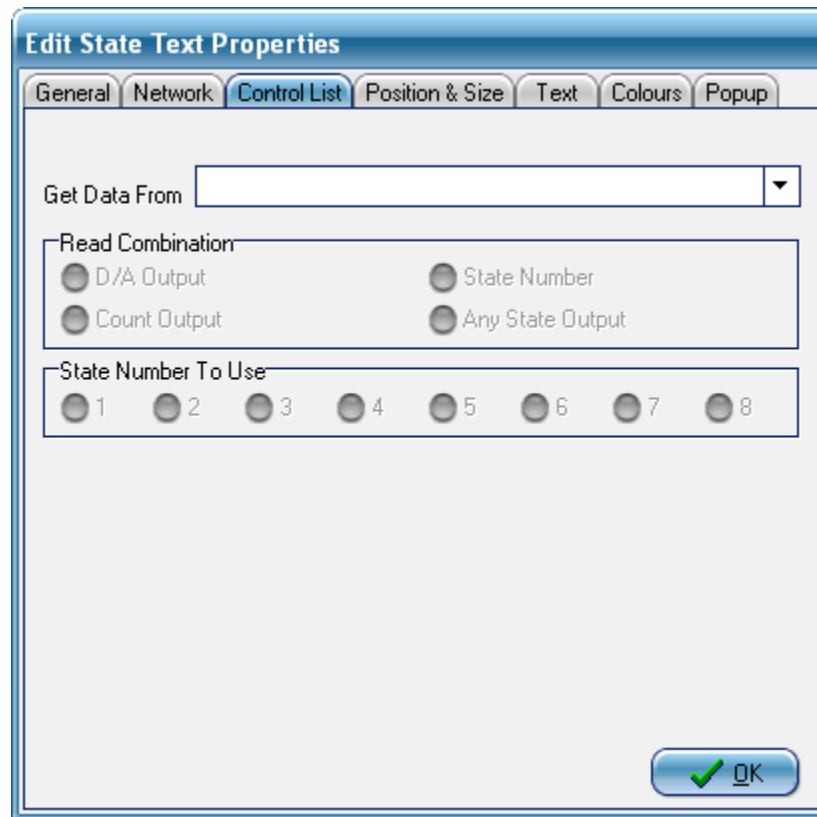
If a control is to look at different codes when a jump is performed, a list of codes has to be given to the control. To do this, <Right Click> on the '*What To Read*' field. This will show a pop-up menu from which you should select '*Multiple Codes*'. This will display the following window where you can add or remove codes.



- **Terminal Access**

When ticked, and if the selected driver supports terminal mode the user can <Right Click> on the control at run time to open the terminal window. Consult device driver documentation for further information.

7.4.14.4 Control List



- **Get Data From**

This combo box allows you to select from a list of other controls that are on this schematic. If this property is *not* empty, this control will source its data from the selected control **INSTEAD** of from the network.

If the type of the source control is not a combination module, the following properties will be disabled otherwise they are used to select from which output of the combination module to source the data.

- **Read Combination**

If the type of the source control is a combination module, the data can be read from one of several outputs as follows:

- **D/A Output**

Source data from combination module Digital to Analogue output (this is the decimal value calculated from the 8 digital inputs of a combination module).

- **Count Output**

Source data from combination module Count output (this is a count of how many inputs to the combination module are non zero).

- **State Number**

Source data from one of the state condition outputs of a combination module. The state to use is selected with the 'State To Use' property.

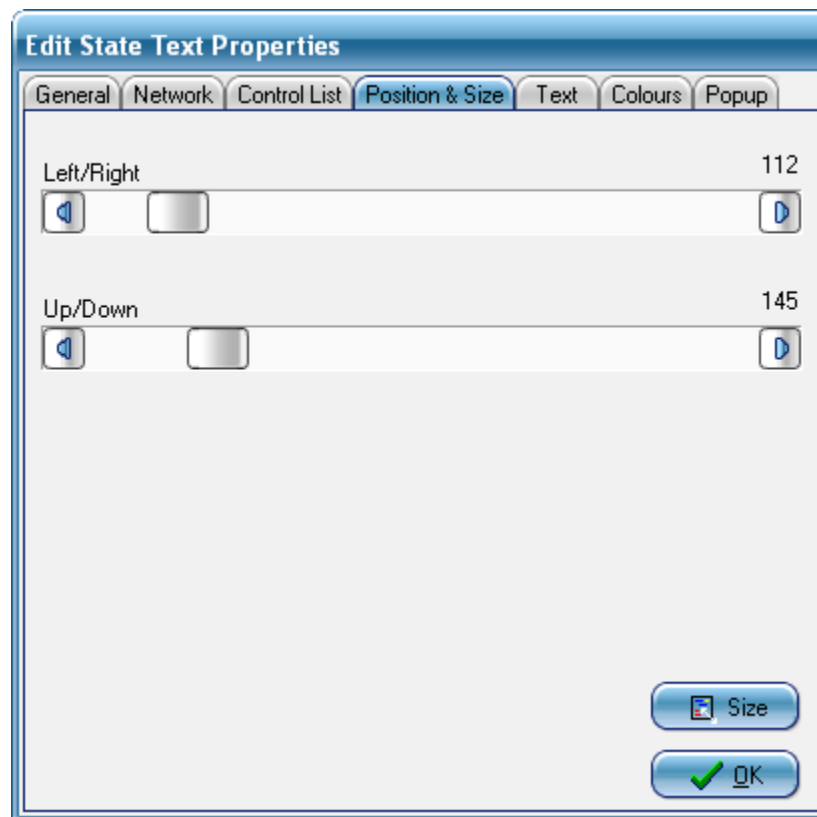
- **Any State Output**

If any of the state condition outputs of a combination module are true, this control will show 1, otherwise it will show 0.

- **State Number To Use**

Which state output to read from a combination module. Only relevant if 'State Number' is selected.

7.4.14.5 Position & Size



- **Left/Right**

Moving this slider will move the controls horizontal position on the schematic.

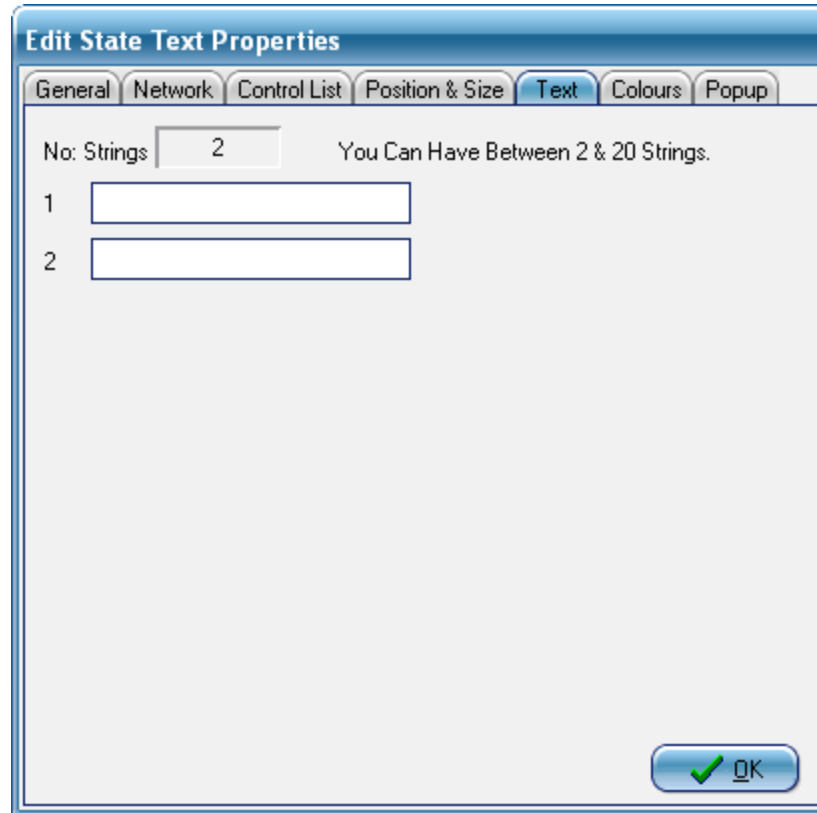
- **Up/Down**

Moving this slider will move the controls vertical position on the schematic.

- **Size**

Pressing this button will change the function of the sliders so that they will re-size the control instead of moving it.

7.4.14.6 Text



Edit State Text Properties

General Network Control List Position & Size **Text** Colours Popup

No: Strings You Can Have Between 2 & 20 Strings.

1

2

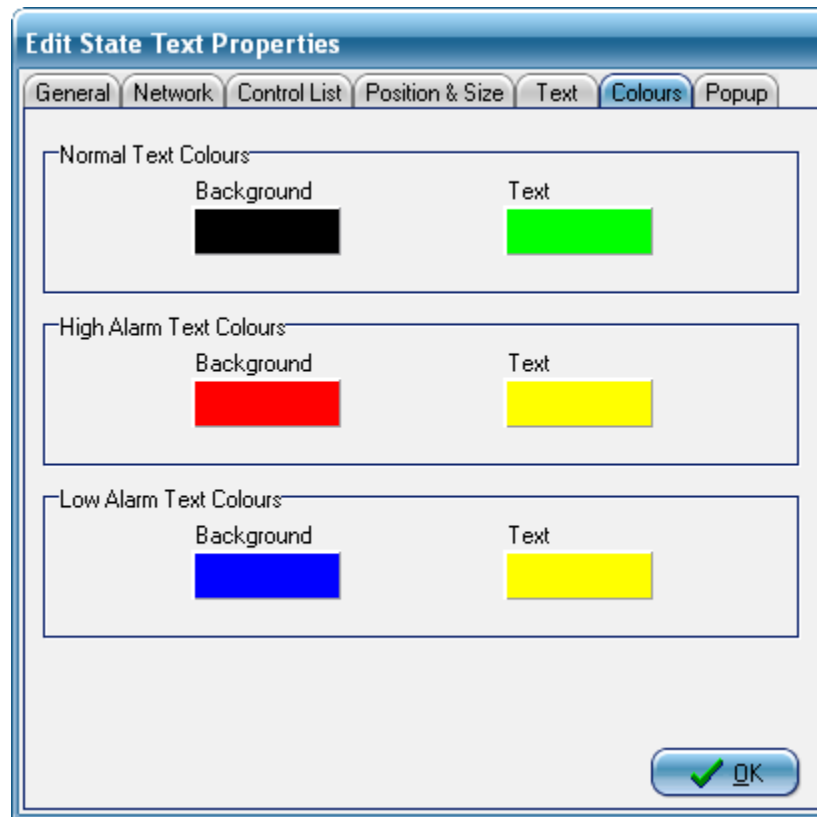
- **No: strings**

Enter the number of states that this control may display.

- **1 to ?**

Text strings, one for each state.

7.4.14.7 Colours



If the Low Alarm Value for this control were to be set to 1 and the High Alarm Value were to be set to 3, the corresponding colours would be used to display the selected string ie:

- String 1 would use the Low Alarm colours.
- String 2 would use the Normal colours.
- String 3 would use the High Alarm colours.

7.4.14.8 Pop-up

Edit State Text Properties

General Network Control List Position & Size Text Colours **Popup**

Schematic

Device

Network

Description

Code Index 0

Open Centered

Use Controls Device/Network

- **Schematic**

<Click> here to select the schematic to open as a pop-up when this control is <Right Clicked> on.

- **Device**

A device can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Network**

A network can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Description**

Text entered in this property will be passed to the pop-up schematic and will be used by any static text controls that have their *Use Global Description* property set.

- **Code Index**

If this property is greater than zero this number tells the controls on the pop-up schematic which code to use to retrieve their data (if the controls have multiple codes entered).

- **Open Centered**

If checked the pop-up schematic will open centered on the screen.

- **Use Controls Device/Network**

If checked and this control is using a global device/network it will pass it on to the pop-up schematic.

7.4.15 Script

7.4.15.1 Description

The *Script* control will retrieve a value from a network device and pass that value onto a user supplied VB Script procedure. The script can modify the value as required then pass it back to this control for storage. Other controls on the schematic can then use the modified value for display purposes.

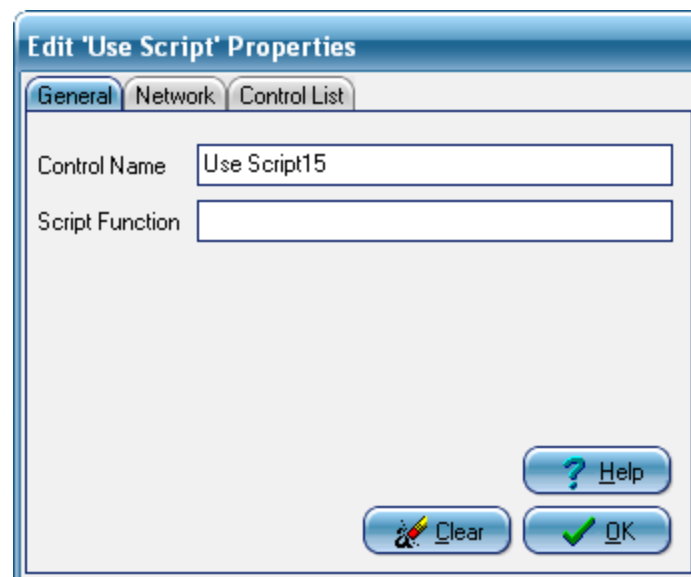
When the schematic is open the script will be called every time that the schematic is refreshed.

If no network information is entered on the network tab, the script will be passed an empty value.

The user written VB Script procedure must have TWO parameters - ControlID as Integer, "Value as String".

The *Script* control is invisible at run-time.

7.4.15.2 General



- **Control Name**

A unique name to identify this control within the schematic.

- **Script Function**

When this field is <Clicked> a list of user created VBScripts is displayed from which you can make a selection.

- **Clear**

This clears the *Script Function* field.

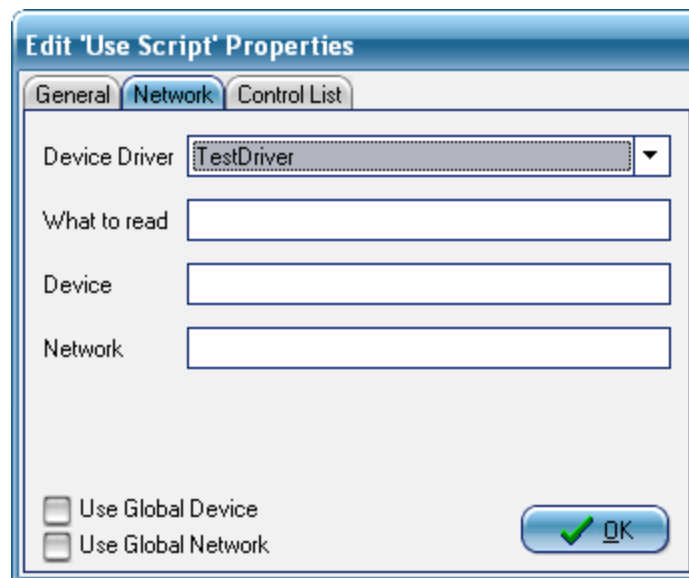
- **OK**

Closes the property editor.

- **Help**

Displays the online help for the control.

7.4.15.3 Network



- **Device Driver**

Select the device driver from which this control should request its data.

- **What to read (sometimes referred to as code)**

Digital object to read - consult device driver documentation for further information.

- **Device**

Device to read object from - consult device driver documentation for further information.

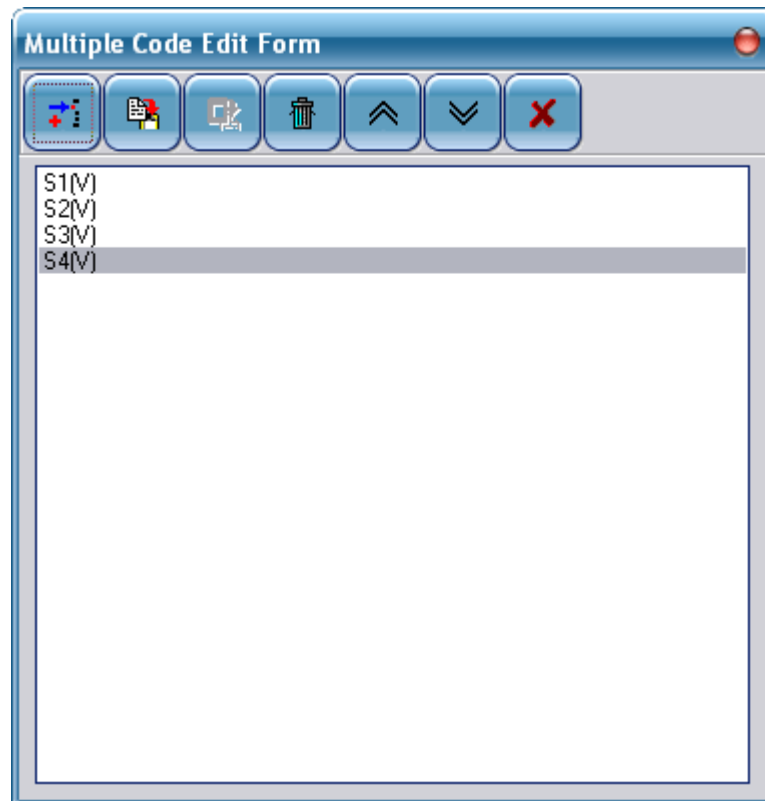
- **Network**

Network on which device resides - consult device driver documentation for further information.

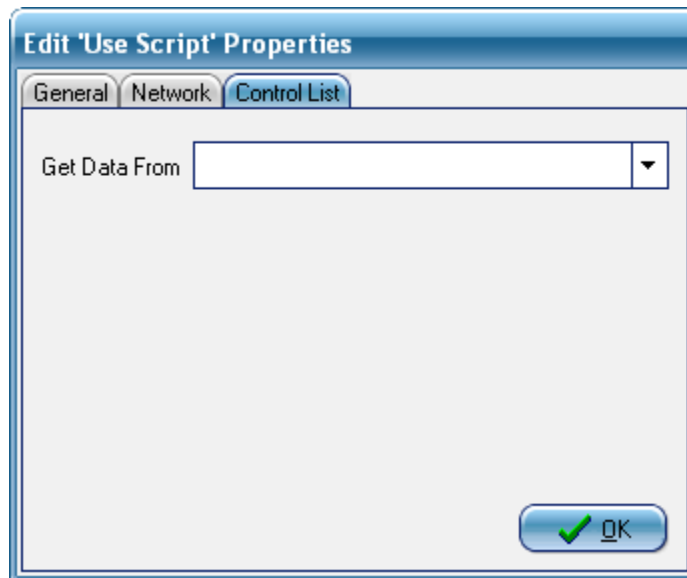
- **Use Global Device/Network**

A jump from another schematic can pass in new Code, Device and Network values. If this box is ticked, these are used in place of the values entered here. This facility enables one schematic to be used for multiple devices.

If a control is to look at different codes when a jump is performed, a list of codes has to be given to the control. To do this, <Right Click> on the '*What To Read*' field. This will show a pop-up menu from which you should select '*Multiple Codes*'. This will display the following window where you can add or remove codes.



7.4.15.4 Control List



- **Get Data From**

This combo box allows you to select from a list of other controls that are on this schematic. If this property is *not* empty, this control will source its data from the selected control **INSTEAD** of from the network.

7.4.16 Scrolling Chart

7.4.16.1 Description

The *Scrolling Chart* control is a real-time chart that can display up to eight values which can be either analogue or digital. Data is sourced from other controls on the schematic.

Data shown by this control is only valid while the schematic is open, content is not saved when the schematic is closed. Use the *Data Logging* feature of *interactive intelligence* for persistent data.

7.4.16.2 General

The screenshot shows the 'Scrolling Chart Edit Form' dialog box with the 'General' tab selected. The 'Control Name' field contains 'Scrolling Chart4'. The 'Chart Title' field is empty. The 'Legend' section has a 'Visible' checkbox and an 'Alignment' sub-section with radio buttons for 'Left' (selected), 'Right', 'Top', and 'Bottom'. The 'Colours' section has 'Border' and 'Chart' color pickers, and checkboxes for 'No chart Colour' and 'View 3D'. The 'Gradient' section has a 'Visible' checkbox, 'Start Colour' and 'End Colour' pickers (the 'End Colour' is yellow), and a 'Direction' sub-section with radio buttons for 'Top-Bottom' (selected), 'Bottom-Top', 'Left-Right', and 'Right-Left'. The 'Bevel' section has radio buttons for 'Inner' (selected), 'Outer', 'None' (selected), 'Lowered', and 'Raised'. At the bottom right are 'Help' and 'OK' buttons.

- **Control Name**

A unique name to identify this control within the schematic.

- **Chart Title**

A description that is displayed at the top of the chart.

- **Legend**

Whether to display legends for the chart traces and if so, which part of the chart to display them on.

- **Colours**

Colours to use for the chart border and chart background.

- **View 3D**

If ticked, shows digital traces as 3D lines.

- **Gradient**

If enabled, shows a colour gradient on the chart border area. This overrides the chart border colour.

- **Direction**

Which direction the gradient should run.

- **Bevel**

Controls the look of the edge of the chart control.

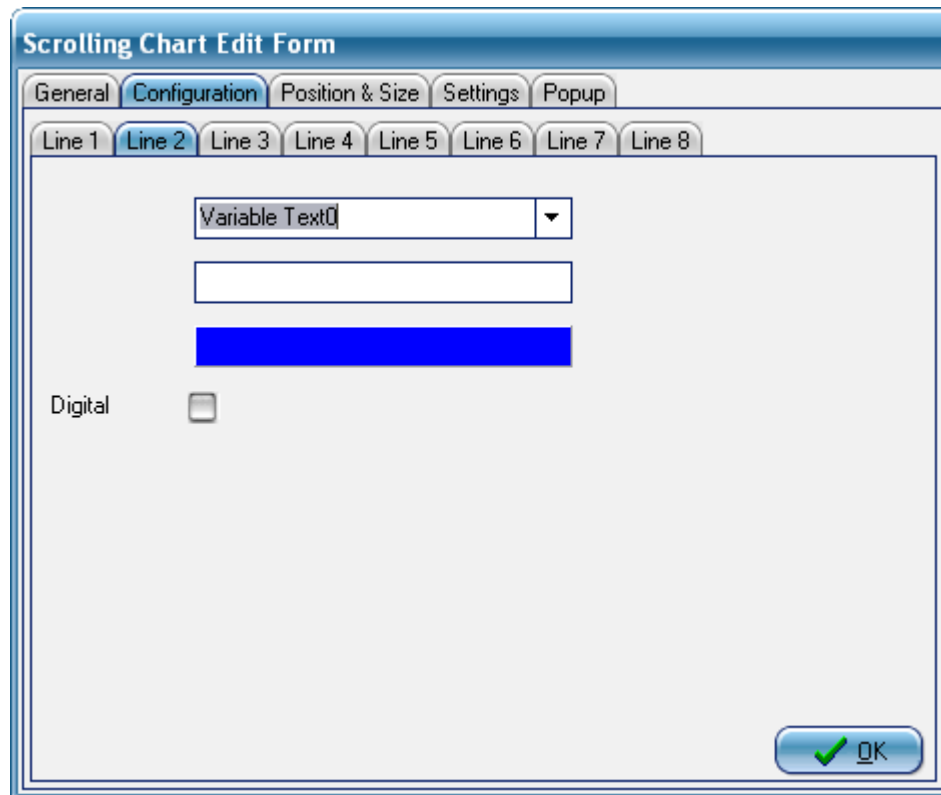
- **OK**

Closes the property editor.

- **Help**

Displays the online help for the control.

7.4.16.3 Configuration



The configuration tab is where each of the eight chart traces can be set-up.

- **Data Source**

Select the control from which this trace should source its data.

- **Line Title**

A description of this item. This is displayed as a legend if the option is enabled on the general

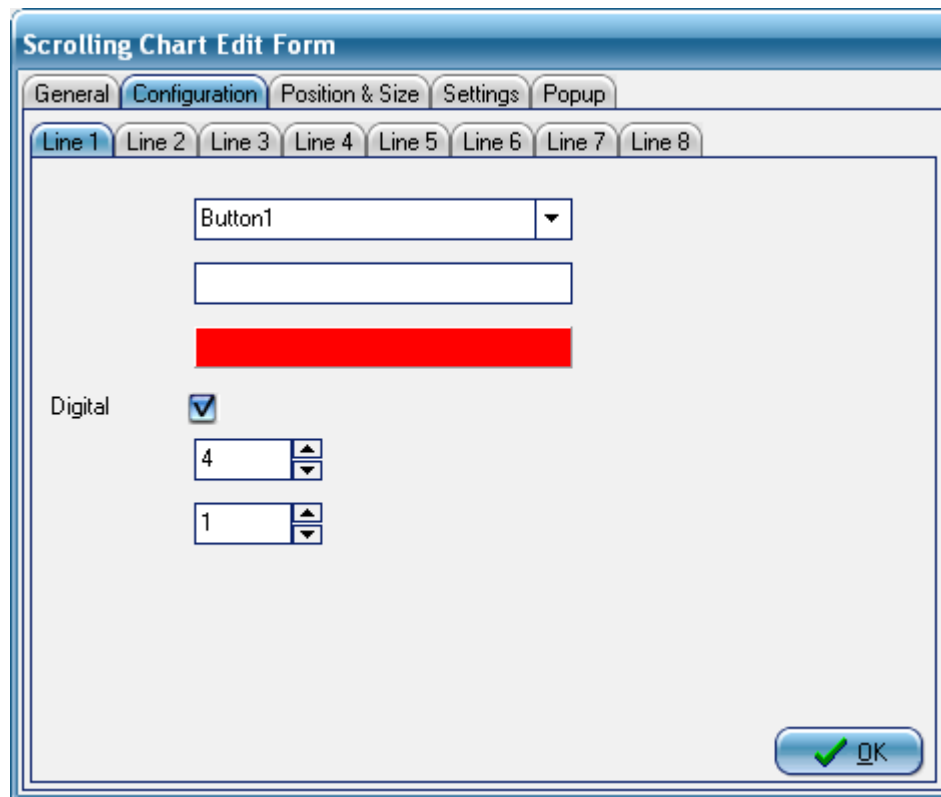
tab.

- **Line Colour**

Select the colour in which this trace should be drawn.

- **Digital**

If this box is ticked, the value is read as a digital value. This will enable some extra properties as shown in the following figure and described below.



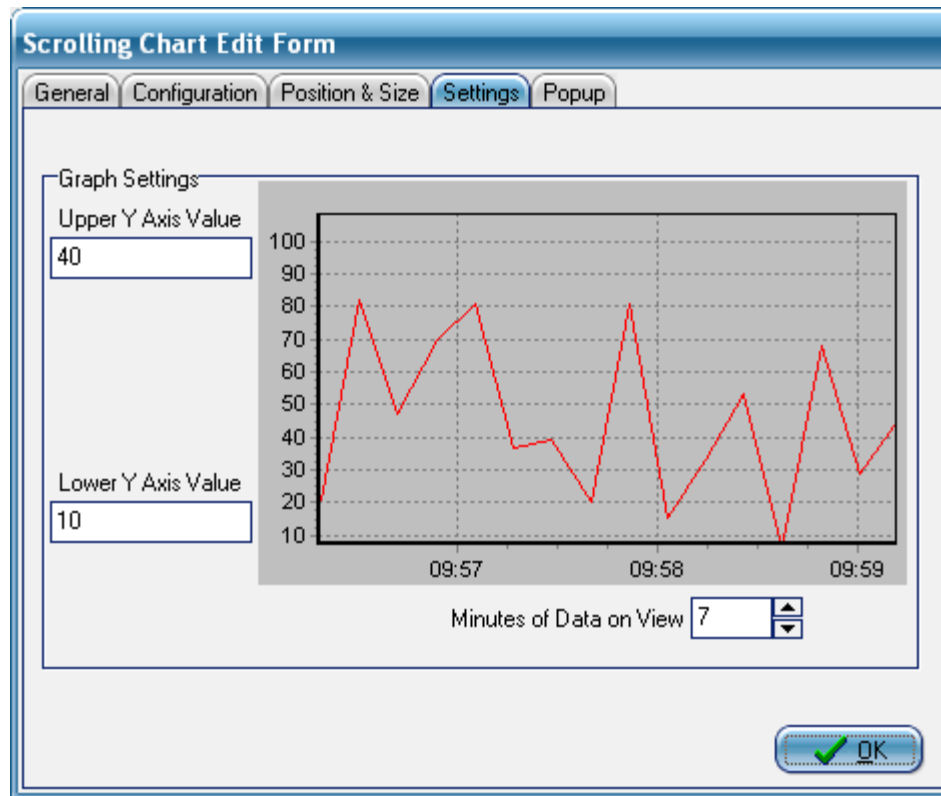
- **Step Value**

This value sets over what vertical height on the chart that a ON to OFF transition is drawn.

- **Step Height**

This value sets the vertical height on the chart that will be used to draw the OFF state.

7.4.16.4 Settings



If the following properties are not set auto scaling will be used for the axis.

- **Upper Y Axis**

Allows the upper value for the Y axis to be set.

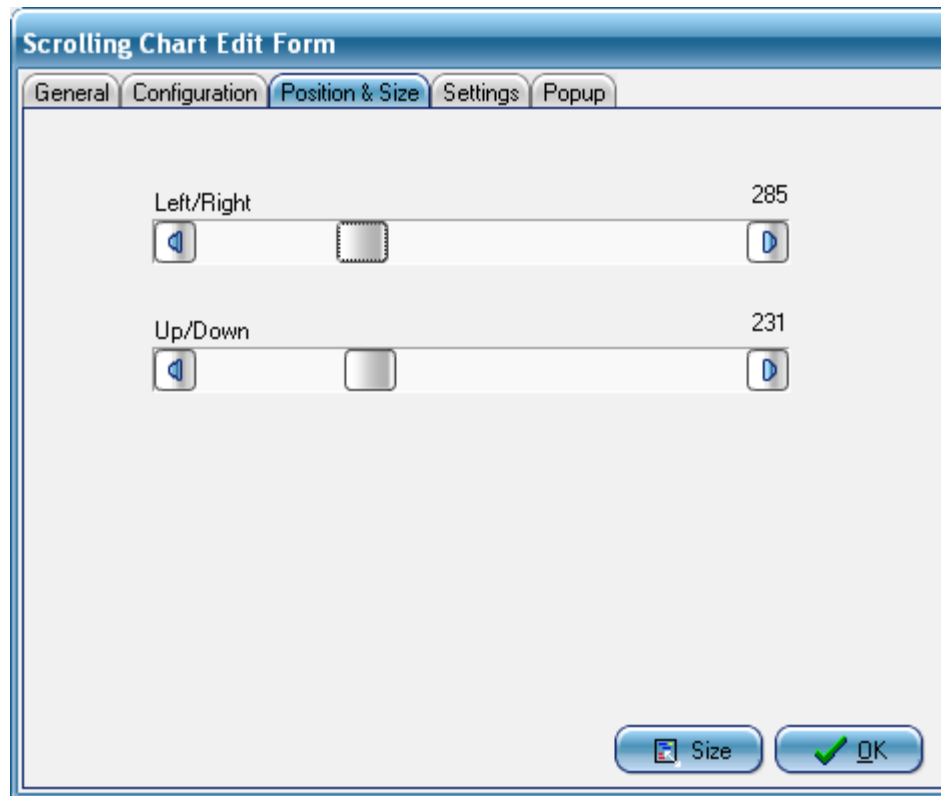
- **Lower Y Axis Value**

Allows the lower value for the Y axis to be set.

- **Minutes of Data on View**

Sets the scale of the X axis.

7.4.16.5 Position & Size



- **Left/Right**

Moving this slider will move the controls horizontal position on the schematic.

- **Up/Down**

Moving this slider will move the controls vertical position on the schematic.

- **Size**

Pressing this button will change the function of the sliders so that they will re-size the control instead of moving it.

7.4.16.6 Pop-up

The screenshot shows a dialog box titled "Scrolling Chart Edit Form" with five tabs: "General", "Configuration", "Position & Size", "Settings", and "Popup". The "Popup" tab is selected. The form contains the following fields and controls:

- Schematic:** A text box containing the word "Boilers".
- Device:** An empty text box.
- Network:** An empty text box.
- Description:** An empty text box.
- Code Index:** A spin box with the value "0".
- Open Centered:** A checked checkbox.
- Use Global Device/Network:** An unchecked checkbox.
- OK Button:** A button with a green checkmark and the text "OK".

- **Schematic**

<Click> here to select the schematic to open as a pop-up when this control is <Right Clicked> on.

- **Device**

A device can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Network**

A network can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Description**

Text entered in this property will be passed to the pop-up schematic and will be used by any static text controls that have their *Use Global Description* property set.

- **Code Index**

If this property is greater than zero this number tells the controls on the pop-up schematic which code to use to retrieve their data (if the controls have multiple codes entered).

- **Open Centered**

If checked the pop-up schematic will open centered on the screen.

- **Use Controls Device/Network**

If checked and this control is using a global device/network it will pass it on to the pop-up schematic.

7.4.17 State Switch

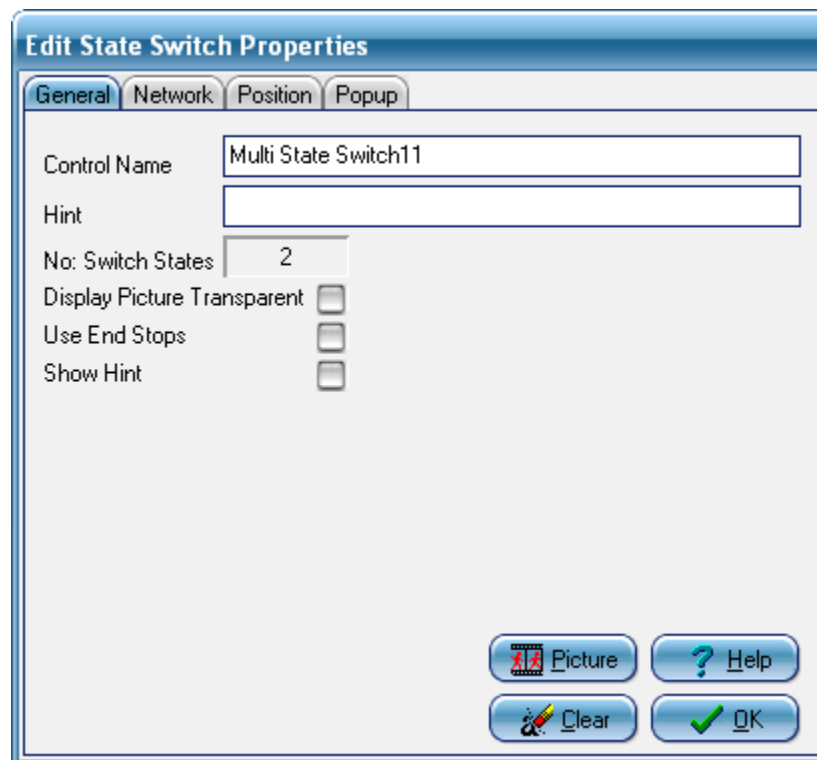
7.4.17.1 Description

The *State Switch* control is an object that is used to read data from and write data to a device and then display a picture to show the status of the data.

In order to achieve this, a bitmap is created containing a number of equally sized pictures (called frames) placed side by side, much like a strip of movie film.

Which frame is displayed is dependent on the data received by the control. For example, if the incoming data were to be 3 then frame 3 would be displayed. If the incoming data were to be 0 then frame 0 would be displayed (the first frame in the strip is frame 0). Some example bitmaps are shown in the '*Network*' section about this control.

7.4.17.2 General



- **Control Name**

A unique name to identify this control within the schematic.

- **Picture**

Displays a bitmap selector so that a bitmap that contains a set of pictures can be loaded. The bitmap selector is discussed in the chapter called "The Bitmap Selector".

The bitmap should consist of a strip of equal size picture frames. Here is an example:



- **Clear**

Unloads the current picture.

- **Display Picture Transparent**

When ticked this tells the control to display the picture transparently. The control uses the colour of the bottom left pixel as the transparent colour.

If the control is a type that uses multi-frame pictures, each frame must have its bottom left pixel set to the required transparent colour.

- **No: Switch States**

Tells the control how many individual picture frames are contained in the loaded bitmap and how many different values can be sent to the driver. The above examples contain 3 switch states. The switch may have a maximum of 20 positions.

- **Use End Stops**

If ticked this will stop the control from going any further than the start or stop position (i.e. it will not rotate through 360 degrees).

- **OK**

Closes the property editor.

- **Help**

Displays the online help for the control.

- **Hint**

Enter text that explains purpose of control to user.

- **Show Hint**

If ticked the hint text will be shown to the user when the mouse pauses over the control.

7.4.17.3 Network

The screenshot shows a dialog box titled "Edit State Switch Properties" with four tabs: "General", "Network", "Position", and "Popup". The "Network" tab is selected. The dialog contains the following fields and options:

- Device Driver:** A dropdown menu with "TestDriver" selected.
- What to read:** An empty text input field.
- Device:** An empty text input field.
- Network:** An empty text input field.
- Access Level:** A text input field containing the number "1".
- Password:** An empty text input field.
- Options:** Four checkboxes:
 - Use Global Device
 - Use Global Network
 - Terminal Access
 - Tick If Item Is Numeric
- Buttons:** A green checkmark icon and an "OK" button.

- **Device Driver**

Select the device driver from which this control should request its data.

- **What to read (sometimes referred to as code)**

Object to read - consult device driver documentation for further information.

- **Device**

Device to read object from - consult device driver documentation for further information.

- **Network**

Network on which device resides - consult device driver documentation for further information.

- **Access Level**

Security level at which a user must be logged on to be able to adjust the value of the object or to be able to open the terminal window.

- **Tick If Item Is Numeric**

If ticked the control will send the switch position to the driver (i.e. 0, 1, 2). If un-ticked it will send whatever you enter into the fields on the Values tab.

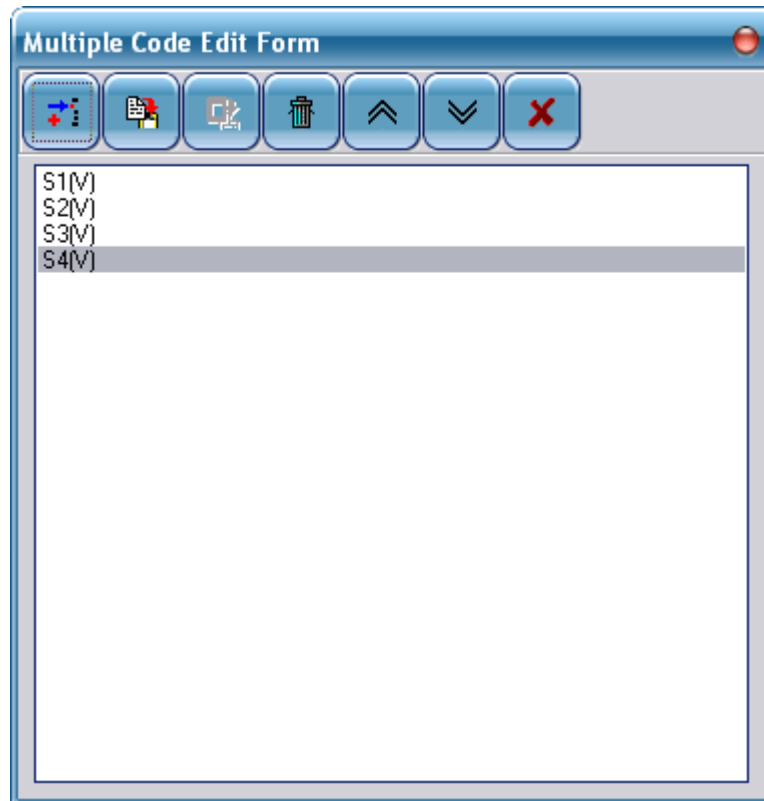
- **Password**

Any text entered here is passed to the device driver when an adjustment is carried out - consult device driver documentation for further information.

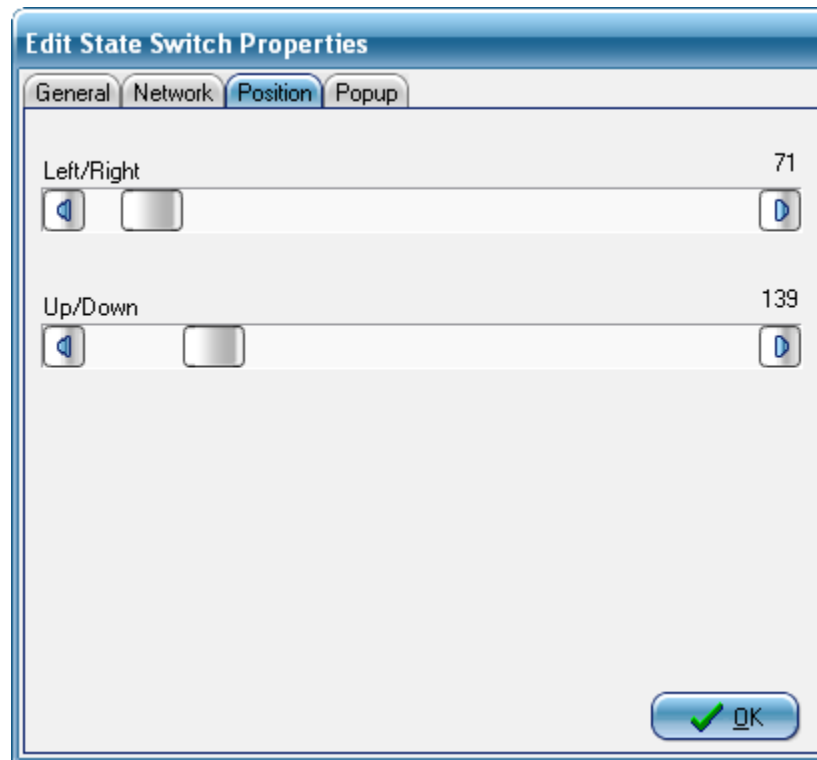
- **Use Global Device/Network**

A jump from another schematic can pass in new Code, Device and Network values. If this box is ticked, these are used in place of the values entered here. This facility enables one schematic to be used for multiple devices.

If a control is to look at different codes when a jump is performed, a list of codes has to be given to the control. To do this, <Right Click> on the '*What To Read*' field. This will show a pop-up menu from which you should select '*Multiple Codes*'. This will display the following window where you can add or remove codes.



7.4.17.4 Position



- **Left/Right**

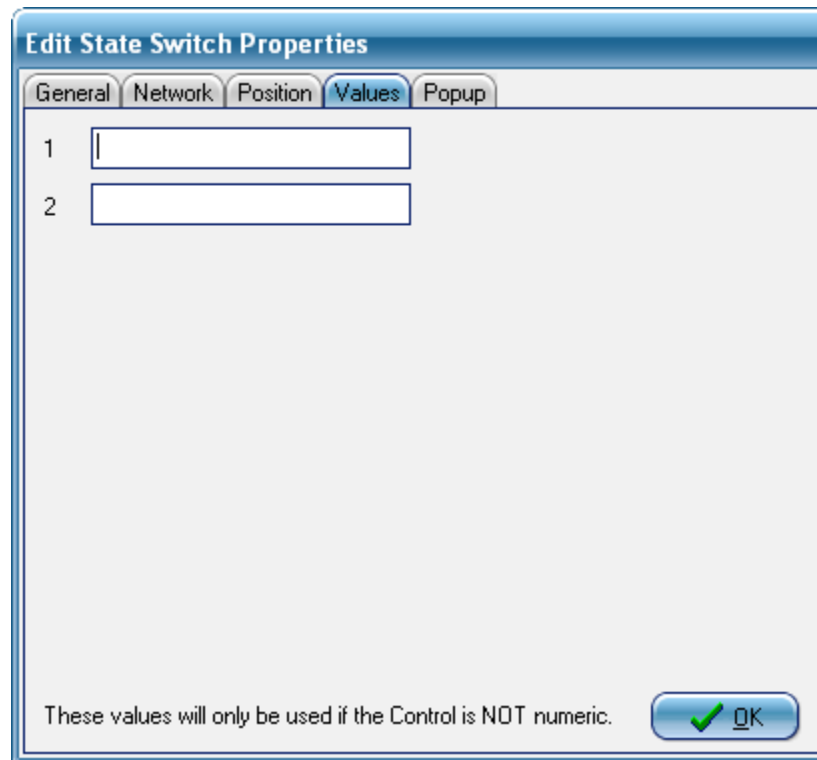
Moving this slider will move the controls horizontal position on the schematic.

- **Up/Down**

Moving this slider will move the controls vertical position on the schematic.

This control automatically sizes to fit the size of a single picture frame (as contained in the loaded picture).

7.4.17.5 Values



The screenshot shows a dialog box titled "Edit State Switch Properties" with five tabs: "General", "Network", "Position", "Values", and "Popup". The "Values" tab is selected. It contains two input fields labeled "1" and "2". At the bottom, there is a note: "These values will only be used if the Control is NOT numeric." and an "OK" button with a green checkmark icon.

- 1.... to 20

If the checkbox '*Tick If Item Is Numeric*' is un-ticked on the general tab, the values entered here are what will be sent to the driver.

7.4.17.6 Pop-up

The screenshot shows the 'Edit State Switch Properties' dialog box with the 'Popup' tab selected. The fields are as follows:

- Schematic: [Text Box]
- Device: [Text Box]
- Network: [Text Box]
- Description: [Text Box]
- Code Index: 0 [Spinner]
- Open Centered:
- Use Controls Device/Network:

- **Schematic**

<Click> here to select the schematic to open as a pop-up when this control is <Right Clicked> on.

- **Device**

A device can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Network**

A network can be entered here that will be passed to all controls on the pop-up schematic. Consult device driver documentation for further information.

- **Description**

Text entered in this property will be passed to the pop-up schematic and will be used by any static text controls that have their *Use Global Description* property set.

- **Code Index**

If this property is greater than zero this number tells the controls on the pop-up schematic which code to use to retrieve their data (if the controls have multiple codes entered).

- **Open Centered**

If checked the pop-up schematic will open centered on the screen.

- **Use Controls Device/Network**

If checked and this control is using a global device/network it will pass it on to the pop-up schematic.

Part



8 Data Logging

8.1 Data Logging Overview

interactive intelligence can be configured to retrieve data from a device and store it to a log file. This file can then be used as the data source for a graph.

Up-to 500 items can be logged to each log file, and may be set to collect data at the following intervals:

- 1 Minute
- 5 Minutes
- 15 Minutes
- 30 Minutes
- 1 Hour
- 6 Hours
- 12 Hours
- 24 Hours (1 Day)

While *interactive intelligence* is running and a log is active, it will continually record data. If the program is stopped and then restarted, the log file will be backed up and recording will start from scratch.

How to display or otherwise access data recorded in log files is discussed in the chapters on Graphs and Scripting.

8.2 Creating or Editing a Data Log

From the main menu select '*Setup*' then '*Data Logging*'. This will display the window shown in figure 26

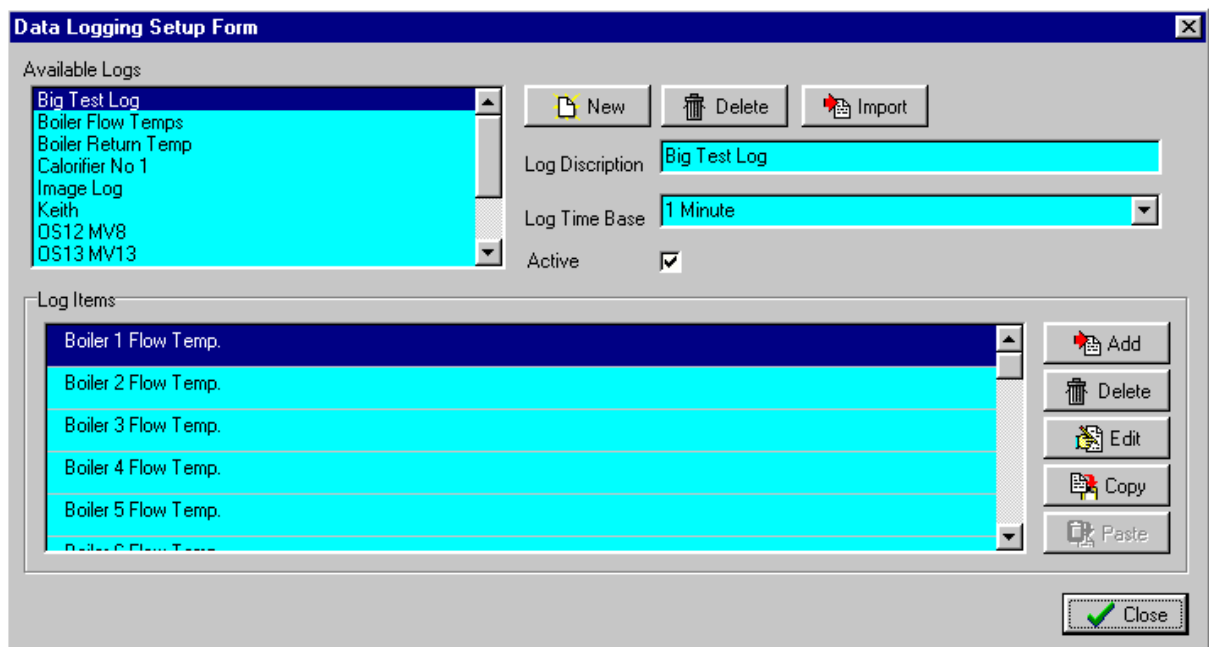


Figure 26

A log consists of a descriptive name, a timebase and up-to 5 items which are recorded.

To create a new log, <Click> on the '*New*' button. A window will open asking you to enter the name.

Once the name is entered it will be added to the list of available logs.

The next thing to do is to set the log time base. The drop down list box gives a selection of time intervals from which you can choose.

Now you can start to add to the log items list. You can import log items from a text file that has the format as shown below or add the items manually:

```
"CODE",DRIVERNUMBER,"DEVICE","NETWORK","DESCRIPTION","TRANSLATEFROM","TRANSLATE TO"
```

To add a new item to the log manually <Click> the 'Add' button. The following window will be displayed:

The screenshot shows a window titled "Data Logging Setup Form" with a close button in the top right corner. The main content area is titled "Edit Log Item Details". It contains the following fields and controls:

- Driver:** A dropdown menu with "TestDriver" selected.
- Code:** A text box containing "S1(M)".
- Device:** A text box containing "11".
- Network:** A text box containing "0".
- Item Description:** A text box containing "Boiler 1 Flow Temp."
- Translate From:** A large text box containing the values "0.0", "50.0", and "100.0".
- Translate To:** A large text box containing the values "150", "200", and "250".
- Buttons:** "Translate" and "Clear" buttons are located below the translate boxes. "Cancel" and "Accept" buttons are located at the bottom right of the window.

Figure 27

In this window you enter these properties:

- **Device Driver**

Select the device driver from which this control should request its data.

- **Code**

Object to read - consult device driver documentation for further information.

- **Device**

Device to read object from - consult device driver documentation for further information.

- **Network**

Network on which device resides - consult device driver documentation for further information.

If the device driver being used supports object selection, <Double Clicking> either of the above fields will instruct the driver to open its own window which will allow you to select information that can be

automatically pasted into the fields.

- **Item Description**

A string that describes this item.

- **Translate**

Opens the translation edit window. This allows you to enter data that changes what comes in from the network to something more appropriate for the log file. This can be used for example when logging SNVT_LEV_DISC from a LonWorks network. For more detailed information see the chapter about the translation editor.

Once the properties are correctly set, <Click> the accept button. You can now add further items as required (up-to 5 total).

To edit a log, highlight it in the available logs list. You can then change the time base and description as required. To edit an item, highlight it then <Click> the '*Edit*' button.

Items can be copied, pasted and deleted by using the appropriate buttons.

The '*Active*' check box determines whether this log will record or not. When ticked the log will record data. This property allows you to individually disable specific logs at will.

Part



9 Graphs

9.1 Viewing A Graph

A graph provides a way of viewing information recorded in data logs. To view a graph from the main menu select '*Utilities*' then '*Graphs*'. The data graphing window will be displayed.

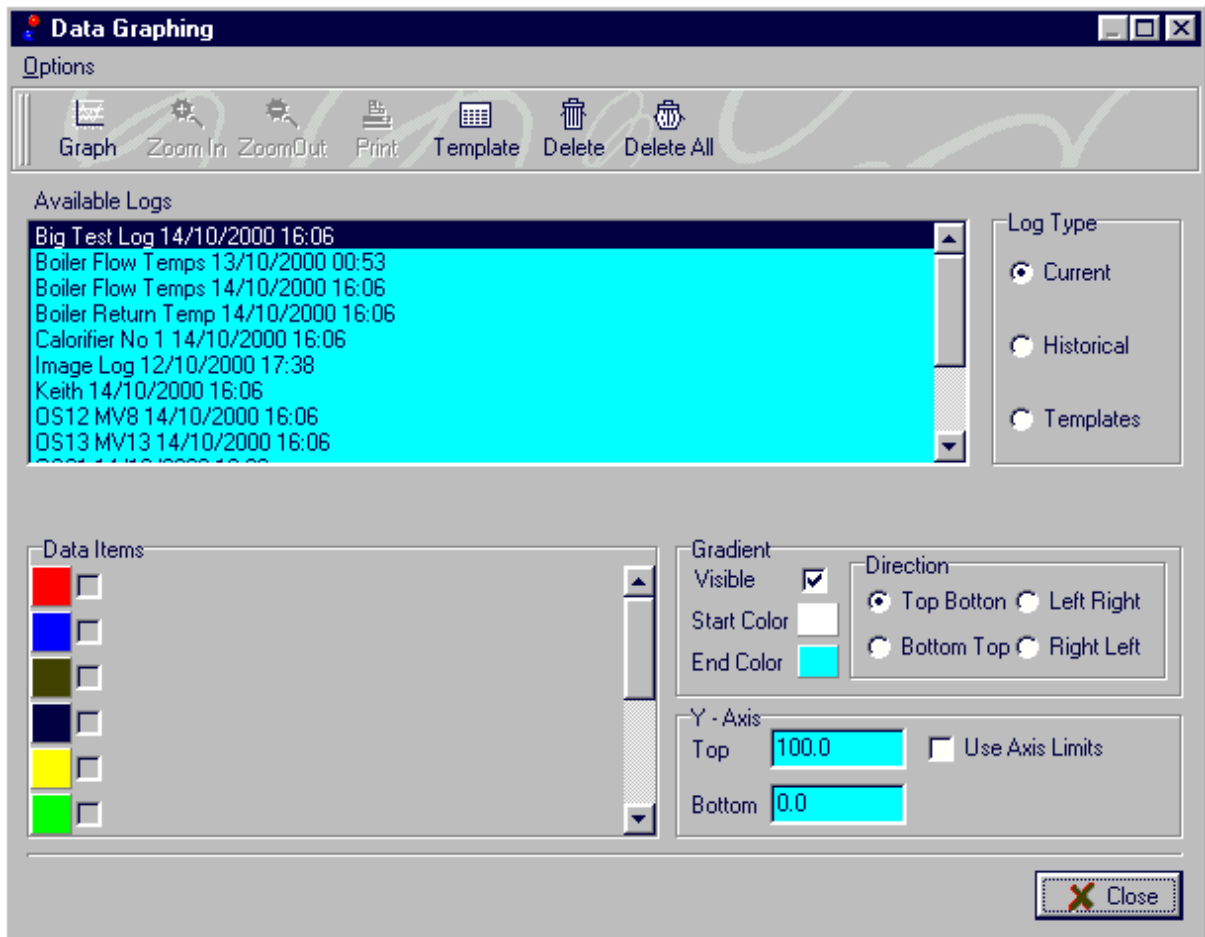


Figure 28

Select the '*Log Type*' to view. Current logs are the logs that are now being recorded, Historical logs are backups of previous data which are created when *interactive intelligence* is re-started or when a data log setup is changed. A Template is a record of a previous graph setup. This allows you to view a graph from a schematic without having to select colours and items as discussed below.

Once the type of log has been selected, a list of available logs will be shown. Select one and the lower left panel will show a list of items that are recorded in the chosen log.

Tick the required items that you want to display on a graph, <Click> on the colour box's to choose the colour that each item should be drawn with then <Click> the '*Graph*' button. This will display the graph as shown below.

<Clicking> the '*Template*' button will save these settings as a template that can be called up from a schematic.

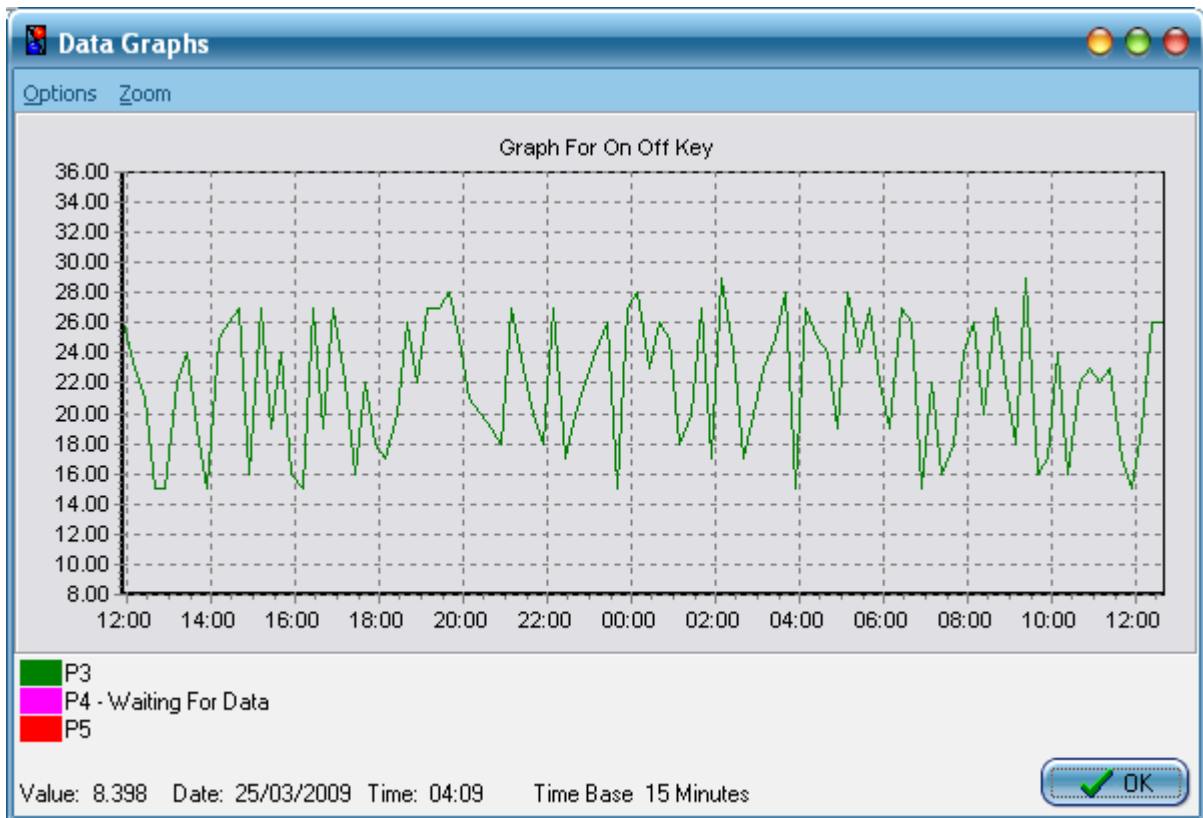


Figure 29

If you hold down the left mouse button and <Drag> from top left to bottom right, the graph will zoom-in to the selected area.

If you hold down the left mouse button and <Drag> from bottom right to top left, the graph will zoom-out to display all content.

If you hold down the right mouse button and <Drag>, the graph will pan in the chosen direction.

The '*Delete*' and '*Delete All*' buttons allow you to delete an individual, or all of the chosen log type.

Under the '*Options*' menu item, you can choose to adjust printer setup and print the graph.

Part



10 Calendars

10.1 Calendar Overview

Calendar functionality comes in two forms in *interactive intelligence*. The first is "Local Calendars" and the second is "Device Calendars" which are covered later in this chapter.

Local calendars are an extremely powerful feature of *interactive intelligence* and are controlled entirely from within *interactive intelligence*. This means that even if your connected network devices do not support calendars or time profiles, you can still have time controlled functionality on your network.

Events can be scheduled to perform various functions on a daily basis at pre-determined times. Special days can be created to override normal daily operations.

Functions that the local calendar event can perform are:

- Change an analogue value in a device.
- Change a digital value in a device.
- Retrieve a Data Log from a device for later viewing.
- Run a user written VB Script.

The following topic explains how to use Local Calendars.

10.2 Local Calendars

To create or modify calendar details, from the main menu select '*Setup*' then '*Local Calendars*'. The following window will be displayed:

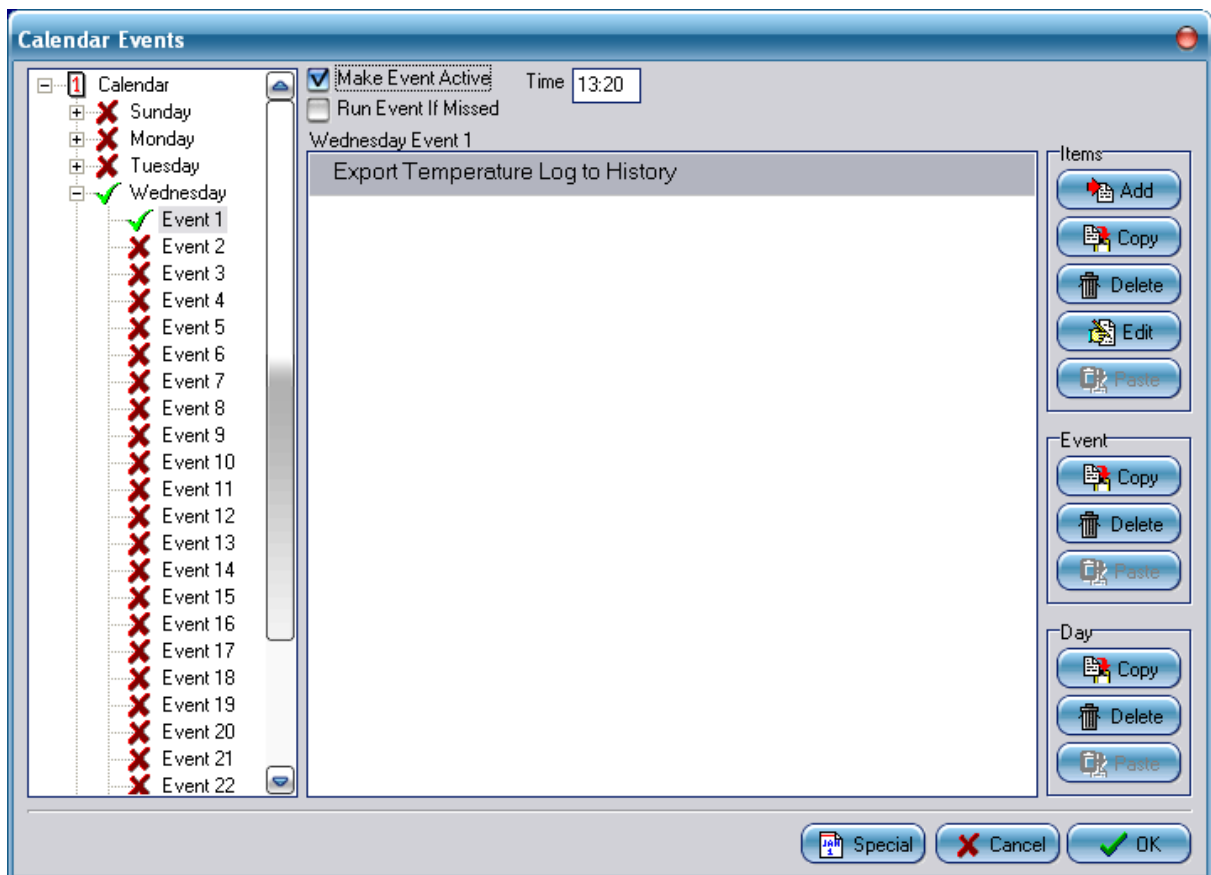


Figure 30

Select the day that you wish to modify, then select the event (there are 24 events available for each day). If you wish to enter events for a particular date that will override normal operation, <Click> the 'Special' button, this will display a pop-up date selection form.

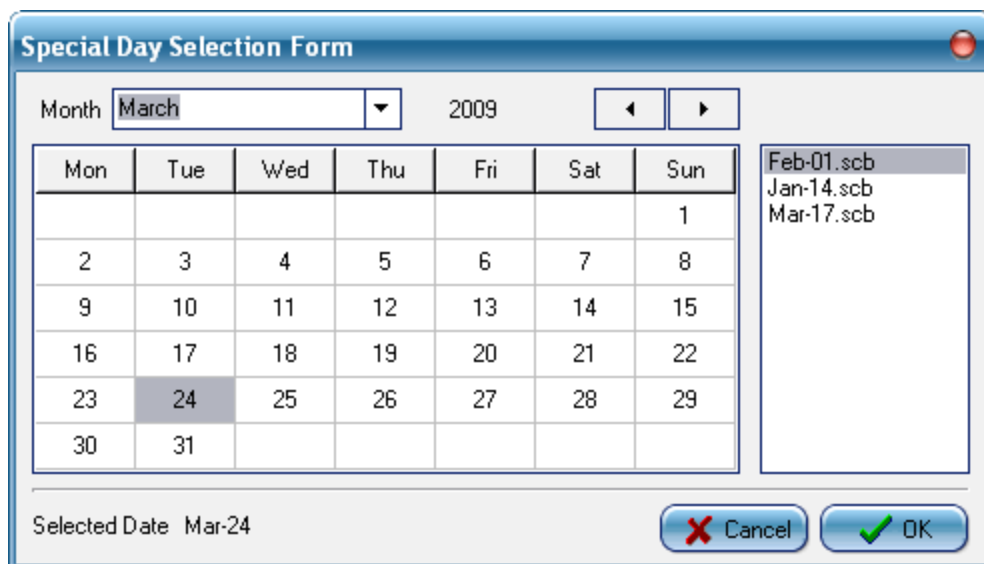


Figure 31

This window also displays a list of existing special days. These can be deleted by highlighting, <Right

Clicking> then selecting delete from the pop-up menu. <Click> 'OK' when done.

Enter the time that this event should occur.

The event must be made active by ticking the '*Make Event Active*' check box.

If '*Run Event If Missed*' is ticked and the software was not running at the time and day that the event should have occurred, next time the software is started the event will be triggered. This box will normally be left un-ticked.

To Add or Edit an item for this chosen event, <Click> the appropriate button in the '*Items*' group. This will display the following window:

Calendar Events

Edit Item Details

Type

Digital

Analogue

Plot

Script

Calendar

Driver
NotUsed

Value
21.5

Code
K1(V)

Device
11

Network
0

Event Discription
Adjust Setpoint to Occupied Value (21.5 °C)

Cancel OK

Figure 32

On this form you select the type of action and fill in the required details then <Click> 'OK'.

Items, Events and Days can all be copied and pasted using the appropriate buttons on the main calendar form.

10.3 Device Calendars

Device calendars are used to adjust time zones or time profiles in a network device that supports them.

Device calendars have been implemented in *interactive intelligence* in such a way as to provide device independent access to time profiles.

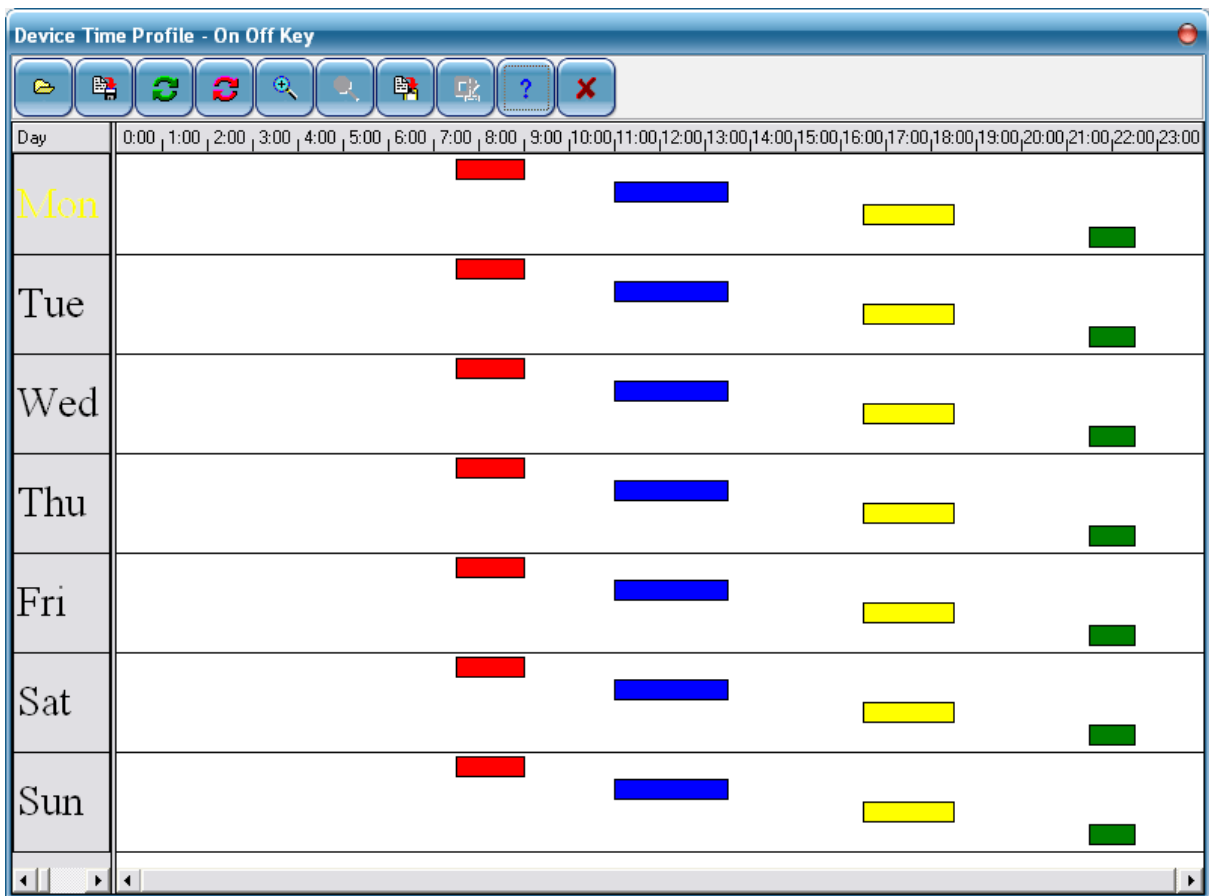
You must use a button on a schematic to access a time profile for a device.

You may have noticed in earlier chapters that the button control has two fields called '*Time Zone Code*' and '*Time Periods*' respectively.

If the device you are connecting to supports time zones, you enter into the '*Time Zone Code*' field the code needed to read or write time information. The '*Time Period*' field should contain the number of On/Off periods that the profile can have in each day. This information should be supplied to you by the device driver supplier.

Whatever you enter in the '*Control Name*' field of the button will be used as the title for the time profile.

Once this information is entered, when the schematic is in run mode, <Clicking> the button will open the following window and retrieve the current time information from the device.



This window shows a coloured bar for each On/Off period in each day. These bars can be dragged and re-sized with the mouse to the required times. To set one of the periods to off, <Right Click> it and select '*Disable*' from the pop-up menu. Disabled or Off periods are shown as transparent bars as shown above for Saturday and Sunday.

To disable a whole day in one go, select the day on the left then hit the <Delete> key.

To re-enable a time period either drag it to the required time or <Right Click> on it and select '*Enable*' from the pop-up menu.

Whole days can be copied and pasted with the buttons on the menu or by using <Ctrl + C> for copy and <Ctrl + V> for paste.

When you have made the required changes <Click> the '*Send*' button to transmit the new times to the device. If you wish to re-load the times from the device, <Click> the '*Retrieve*' button.

Time profiles can be saved to and loaded from disk using the appropriate buttons on the menu.

When you have finished, <Click> the '*Close*' button to shut the window.

Part



11 Scripting

11.1 Scripting Overview

interactive intelligence supports user written VB Scripting. This language is a subset of that used in Microsoft™ products such as Word™ and Excel™.

This functionality allows *interactive intelligence* to be extended to meet specific requirements.

Whilst this chapter will explain how script procedures interact with *interactive intelligence*, and will cover some extra functions that have been added to the VB Script language for this purpose, details of how to program using the VB Script language are beyond the scope of this manual. Many other books are available from good bookstores that go into great depth about VB Script, from beginner to advanced level.

11.2 Extra Procedures Added To VB Script

Before we go on to explain how scripts are edited and run from within *interactive intelligence* it is necessary to cover some extra procedures that we have added to the VB Script language to provide a better interaction with schematics and drivers.

Global Constants

Driver1, Driver2,, Driver20

Type: Integer

These constants relate to the four drivers in *interactive intelligence*. Always use these constants in procedures that need to know which driver to use.

Extra Procedure List

- **SendAnalogueValue** Driver1 , "Code_as_String" , "Device_as_String" , "Network_as_String" , "Value_as_String" , "Password_as_String" , "Procedure_as_String"

This procedure enables you to write an analogue value to a device. Parameters have the following meaning:

Driver1 - Which driver to send the value via.

Code - Object in the device which is to be written to. See driver documentation for further detail.

Device - Device in which the object resides. See driver documentation for further detail.

Network - Network on which the device resides. See driver documentation for further detail.

Value - The new value to write to the object.

Password - If the driver requires a password, put it in this string. See driver documentation for further detail.

Procedure - A user written procedure to which the acknowledge response should be returned. This procedure must have **ONE** parameter.

- **SendDigitalValue Driver1 , "Code_as_String" , "Device_as_String" , "Network_as_String" , "Value_as_String" , "Password_as_String" , "Procedure_as_String"**

This procedure enables you to write a digital state to a device. Parameters have the following meaning:

Driver1 - Which driver to send the value via.

Code - Object in the device which is to be written to. See driver documentation for further detail.

Device - Device in which the object resides. See driver documentation for further detail.

Network - Network on which the device resides. See driver documentation for further detail.

Value - The new value to write to the object. Value should be "1" or "0" for On/Off respectively.

Password - If the driver requires a password, put it in this string. See driver documentation for further detail.

Procedure - A user written procedure to which the acknowledge response should be returned. This procedure must have **ONE** parameter.

- **GetValue Driver1 , "Code_as_String" , "Device_as_String" , "Network_as_String" , "Procedure_as_String"**

This procedure enables you to read a value from a device. Parameters have the following meaning:

Driver1 - Which driver to read the value via.

Code - Object in the device from which to read the value. See driver documentation for further detail.

Device - Device in which the object resides. See driver documentation for further detail.

Network - Network on which the device resides. See driver documentation for further detail.

Procedure - A user written procedure to which the value should be returned. This procedure must have **ONE** parameter.

- **GetPlot Driver1 , "Code_as_String" , "Device_as_String" , "Network_as_String" , "Procedure_as_String"**

This procedure enables you to read a data log from a device. Parameters have the following meaning:

Driver1 - Which driver to read the log via.

Code - Object in the device from which to read the data log. See driver documentation for further detail.

Device - Device in which the object resides. See driver documentation for further detail.

Network - Network on which the device resides. See driver documentation for further detail.

Procedure - A user written procedure to which the data log should be returned. This procedure must have **ONE** parameter.

Data is returned to the user written procedure as a string in the following format:

STARTDATE,STARTTIME,TIMEBASE,COMMA DELIMITED DATA

24/03/1998,08:35,15m,26.53,26.51,26.48,26.49,.....

TIMEBASE will be in this format:

Value followed by a letter, with valid letters having this meaning:

s = seconds
m = minutes
h = hours
d = days
w = weeks
n = months
y = years

So for example:

Every 15 minutes would be -- 15m

Every day would be -- 1d

Every 2.5 hours would be -- 2.5h

- **DriverFunction Driver1 , FunctionNumber_as_Integer , Fdata_as_Single , "Sdata_as_String"**

This procedure enables you to run a driver specific function. Parameters have the following meaning:

Driver1 - Which driver to make the function call to.

All other parameters are as specified by the author of the device driver being used.

- **LogMessage "Message_as_String"**

This procedure will write the message string to the *interactive intelligence* log file.

- **ErrorMessage "Message_as_String"**

This procedure will write the message string to the *interactive intelligence* error file.

- **CreateAlarm "Message_as_String"**

This procedure will send the message string, along with the current system time and date to the *interactive intelligence* alarm panels.

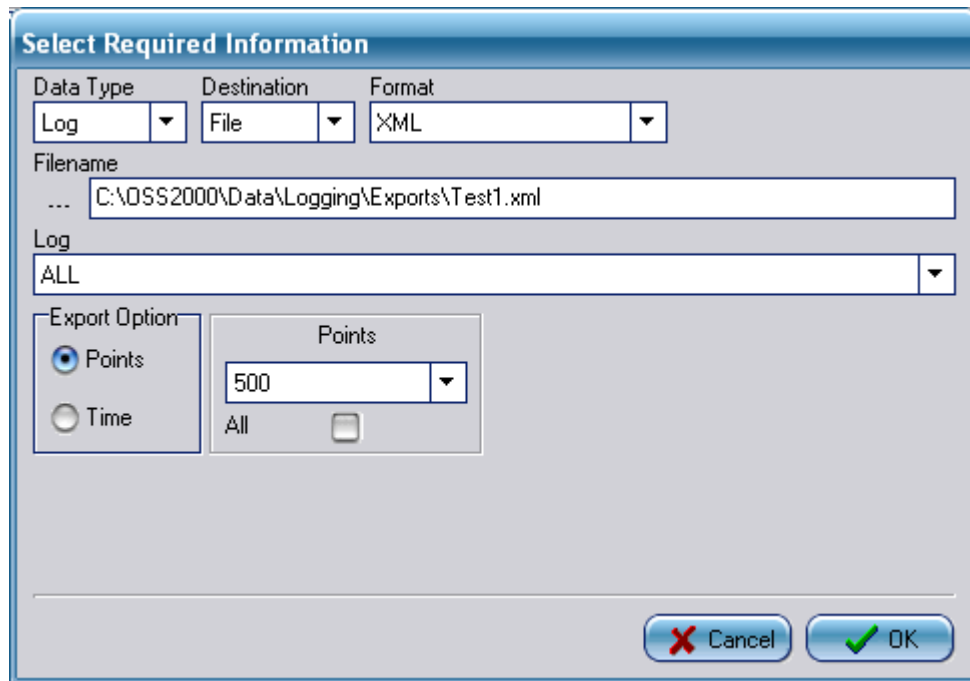
- **ReturnValue "Value_as_String" , ControlID_as_Integer**

This procedure will send a value back to the Script control identified by ControlID.

- **ExportData**

This will open the following window. This dialog will get all the required information from the

user and then generate the appropriate VBScript code to perform the data-log/plot export.



Currently the following formats can be exported to:

- History - Exports the plot/log to the historical data directory.
- CSV - Rows
- CSV - Columns
- Stark DF2
- Dynamat
- XML

Export destination can be File, Email or both.
The log can be emptied when the data is exported.

- **WriteDataToFile "FileName as String" , "Data_As_String" "Append_As_BooI"**

This procedure will write user data to a user specified file. Parameters are as follow:

FileName - Filename to write data to.

Data - User data as a string.

Append - If TRUE will add the data to the end of the file. If FALSE will overwrite the file.

- **OpenSchematic "\Groups\NewRoom.ICD"**

This procedure will open the specified schematic. No drive identifier is used and the string should always start with "\Groups\"

- **OpenSchematicWithDevice "\Groups\NewRoom.ICD", "Device_As_String", "Network_As_String", "Description_As_String", Code_Index_As_Integer**

This procedure will open the specified schematic. No drive identifier is used and the string should always start with "\Groups\"

Device - Device in which the object resides. See driver documentation for further detail.

Network - Network on which the device resides. See driver documentation for further detail.

Description - A piece of text that can be used by labels in the schematic.

Code Index - Which code to use if multiple codes are being used on the schematic.

- **RefreshSchematic**

This procedure will force the currently displayed schematic to be refreshed.

11.3 Editing Scripts

From the main menu select '*Setup*' then '*Scripts*', the following window will display:

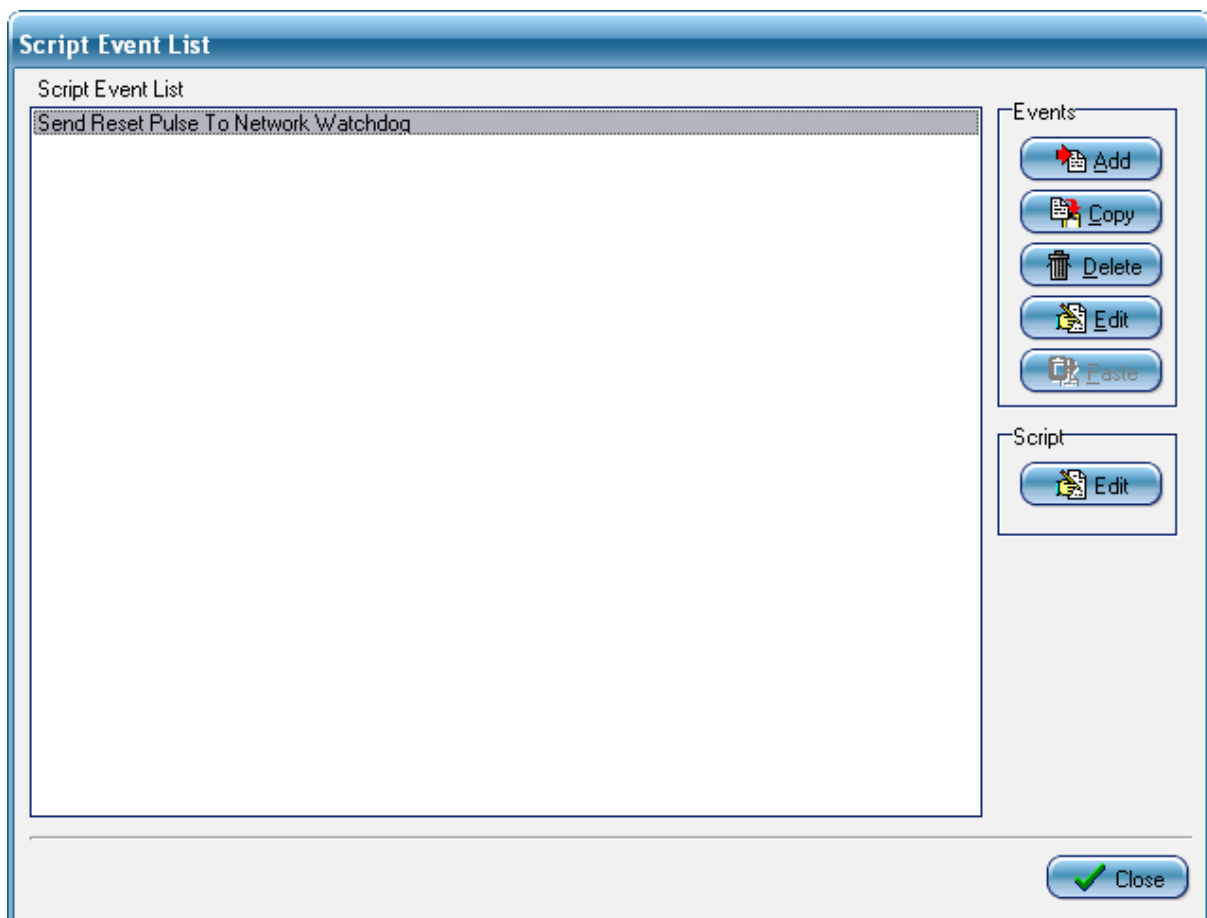


Figure 33

<Click> On the '*Script*' '*Edit*' button. This will open the script editing window as shown in figure 34.

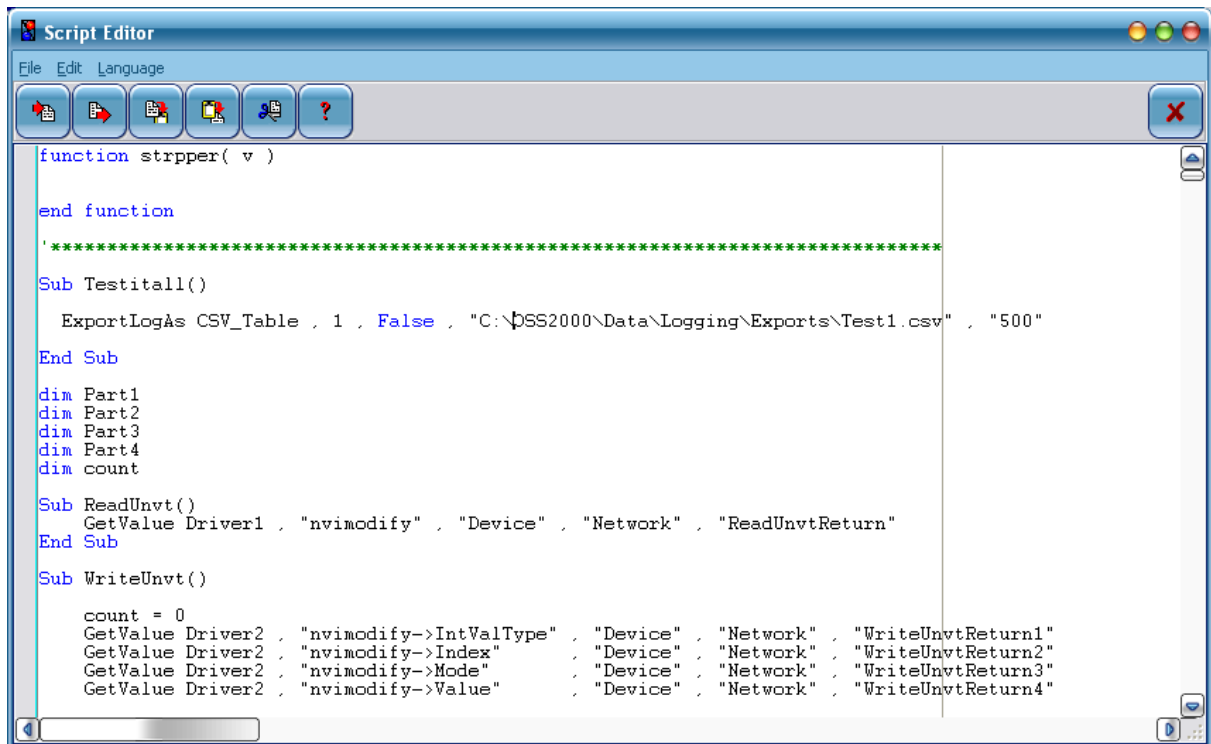


Figure 34

In this window you can create your scripts as required. If you wish to use one of the procedures that we have added to the VB Scripting language, <Right Clicking> in the edit window will show a pop-up menu as shown in figure 35 from which you can select the required procedure.

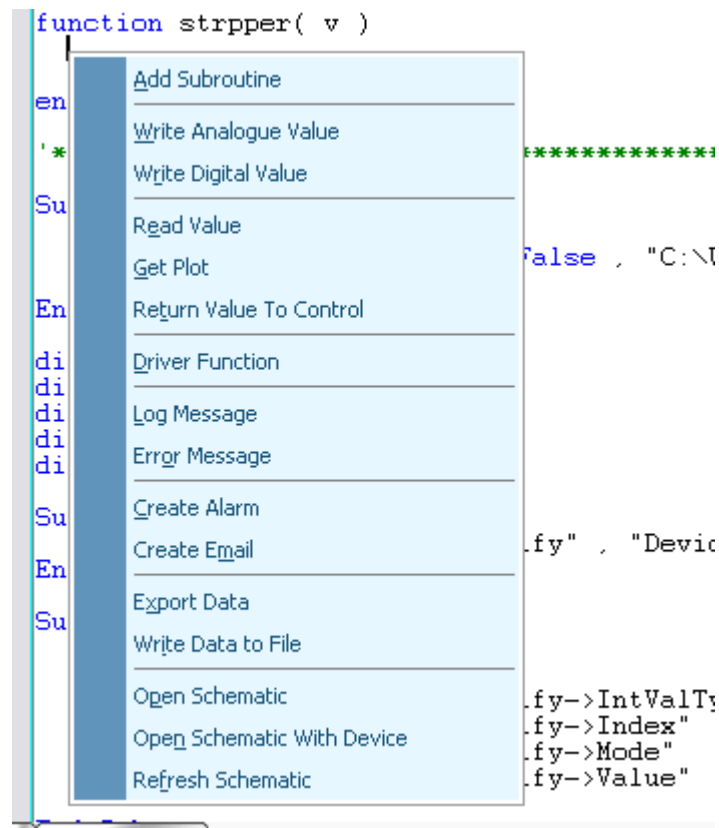


Figure 35

This will paste the shell of the procedure ready for you to complete.

```
Sub AdjustSetpointToDaytime()
    SendAnalogueValue Driver1 , "Code as String" , "Device as String" , "Network as String" , "Va
End Sub
```

Figure 36

When finished, closing the window will save the script file. If there are any design-time detectable errors in the script, the window will re-open with the line highlighted where the error occurred.

11.4 Notes About Your Scripts

- Be careful not to create scripts that get stuck in loops.
- Try to keep any loops as short as possible.

11.5 Running Scripts

VB Script procedures that you have written can be called from various places as listed below.

- **Script Event Timer** - Discussed below

- **Calendars** - Discussed in Calendar Setup
- **Schematic Buttons and Hotspots** - Discussed in Button & Hotspot Controls
- **Schematic Script Control** - Discussed in Script Control
- **Other Script procedures** - Self explanatory
- **Alarm Panels** - Discussed in Alarm Panel Settings

The script event timer enables scripts to be run at regular pre-determined intervals. To add scripts to the event list, <Click> on the 'Add' button on the Script Event List window (figure 33). This will display a window where you can select the script to add to the event list, select the interval at which the script should be run and a check box to enable or disable this event.

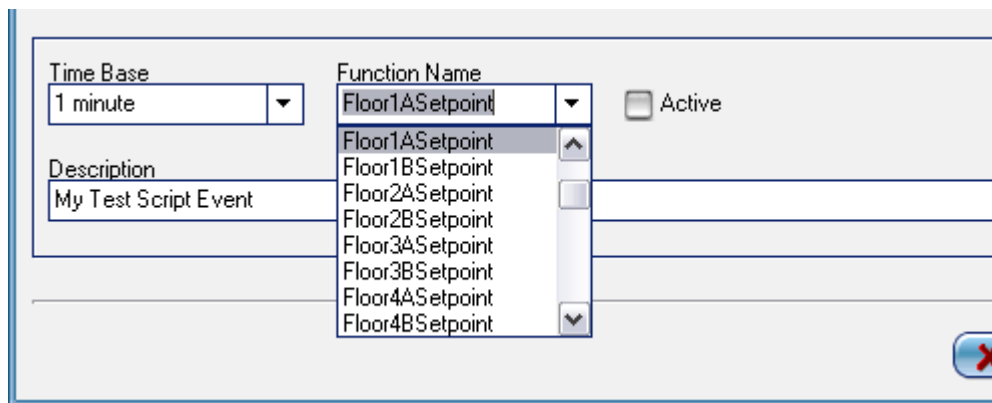


Figure 37

Part



12 Voice System

12.1 Voice System Overview

The voice system in *interactive intelligence* is a unique and powerful tool. It allows you to adjust and read control system values via a telephone. It will also take voice messages from users for the system engineer.

Users can be given access to items specific to them with the use of a special script language. Each user is given a password, when they enter this password, the voice system will run the script that has been created for them.

The voice system has a main greeting that is first played to users when they call into the system. This greeting can be re-recorded from the main voice system window which is displayed when the voice option is selected as discussed in the Comms Options chapter.

The main voice window is shown here:

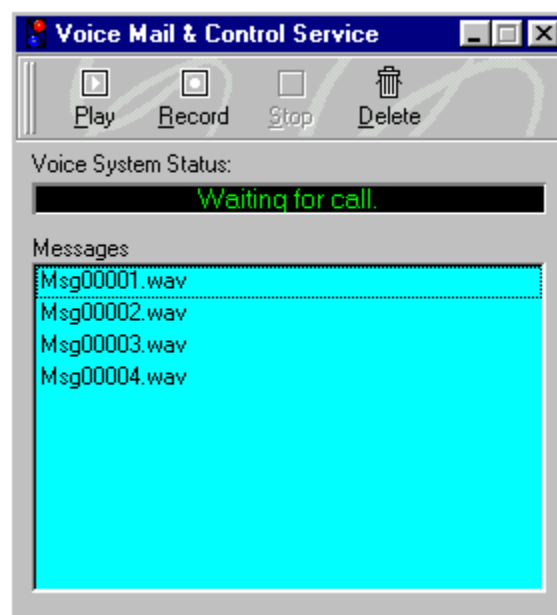


Figure 38

- To re-record the main greeting, <Click> the 'Record' button and <Click> the 'Stop' button when complete.
- To play back the main greeting, <Click> the 'Play' button.
- <Clicking> the 'Delete' button will delete all messages in the list.
- <Double Clicking> a message will play that message.

12.2 Creating Control Scripts

To create or edit voice system scripts, from the main menu select 'Setup' then 'Voice control system'. This will display the following window:

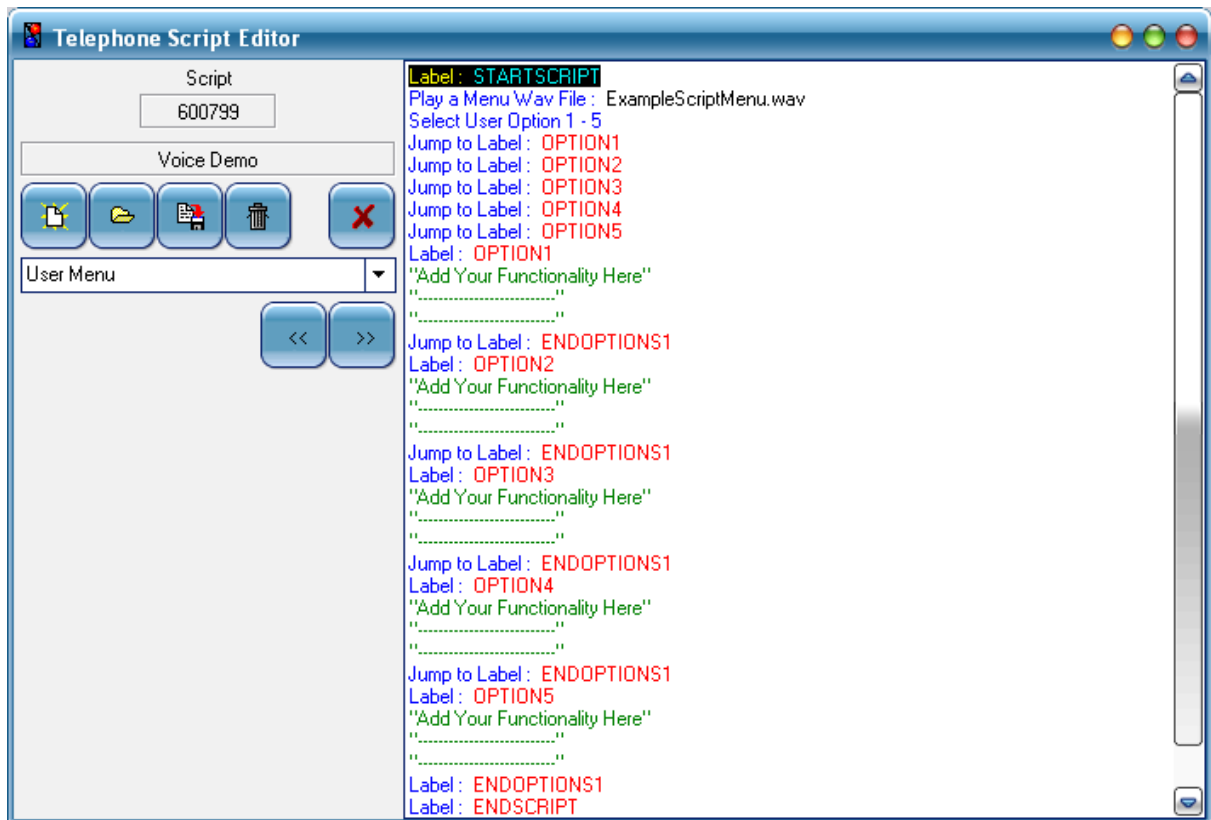


Figure 39

To create a new script or edit an existing one <Click> the corresponding button. When a new script is created, a password is automatically generated and shown in the top left panel. This password has to be entered by the user to access this script when they call into the system.

Anyone who has no password will be passed through to leave a message for the engineer.

To enter new actions into the script, highlight the line where the new action should be added. The new entry will be inserted before the highlighted line.

Select the required action from the drop down list, then <Click> the '>>' button.

Depending on the selected action, you will be presented with various windows asking you for further information.

One window that you will see quite regularly is the wav (sound) file selection window as shown below:



Figure 40

In this window you can:

- Select an existing wav file.
- <Click> The '*Record*' button to record a new file then <Click> the '*Stop*' button when finished.
- <Click> The '*Play*' button to play the displayed wave file.

Once you have completed your script, <Click> the '*Save*' button, then '*Quit*'.

Part

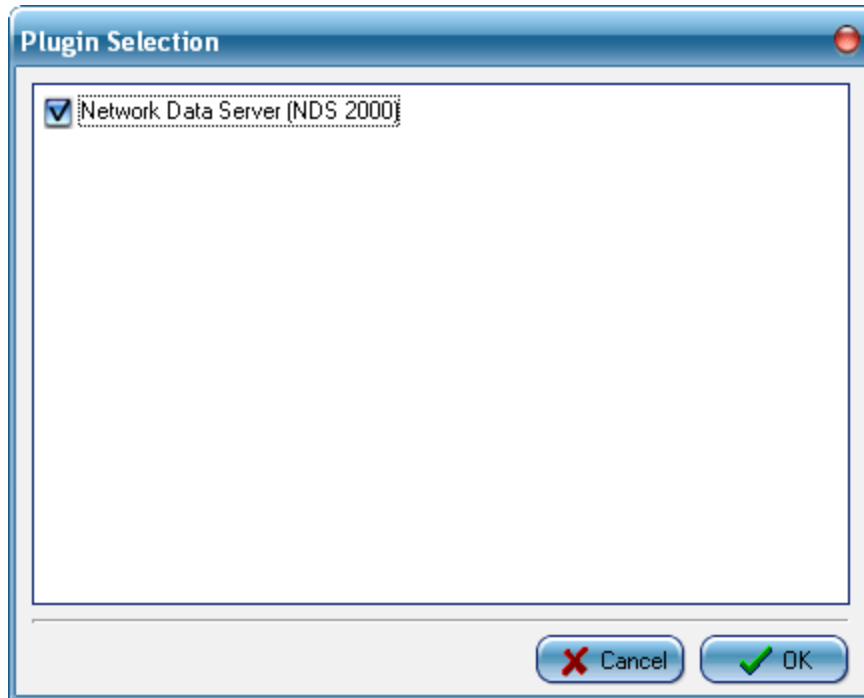
XIII

13 Plug-Ins

13.1 Enabling Plug-Ins

Plug-Ins are add on programs for *interactive intelligence* that provide extra functionality. This enables future ideas and specialised modules to be created as required.

To determine what Plug-Ins are available on your system and to activate them select '*Setup*' then '*Plug-Ins*' from the main menu and the following window will display:



Tick the Plug-Ins that you wish to run.

Part

XIV

14 Remote Connection

14.1 Remote Connection Overview

Provided inbound and outbound connection information and modem selection has been configured as described in earlier chapters, you will be able to connect to and take control of a copy of *interactive intelligence* running on a remote PC.

When a connection is made, most functions actually take place on the remote machine. These include:

- Schematic Editing
- Adjustments
- Script Editing
- Configuration (Except editing Voice Scripts)

interactive intelligence will accept ONE incoming connection from a modem and ONE from a network at the same time.

To use *interactive intelligence* for multiple incoming connections at the same time you will need the HTTP Server Plug-In which will be available early in 1999.

14.2 Connecting To a Remote Site

To connect to a remote site, from the main menu select '*Remote Connection*' then '*Connect*'. This will display the window as shown below:

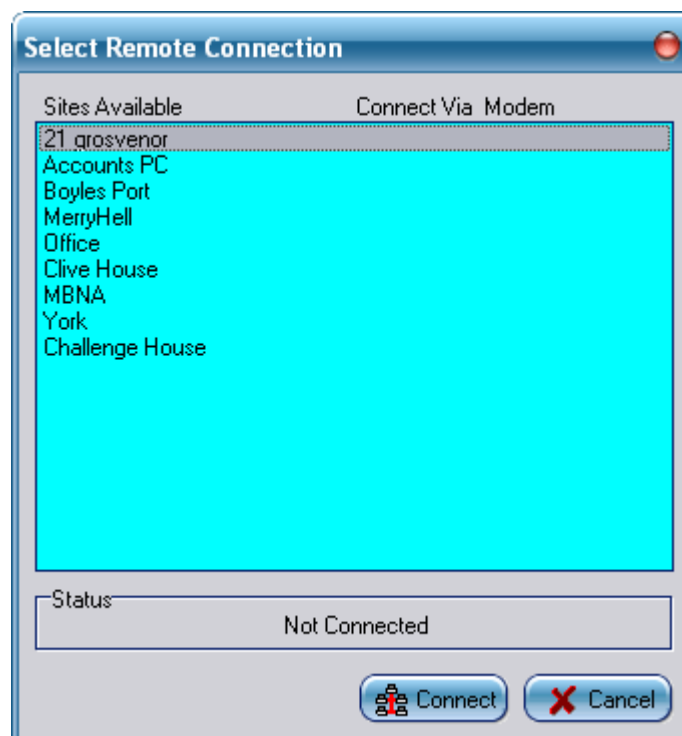
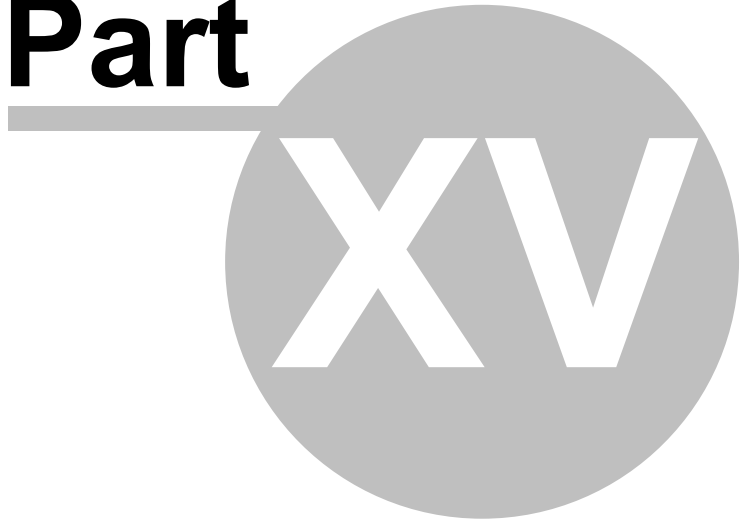


Figure 41

Selecting the required site and <Clicking> on the '*Connect*' button will initiate the connection process. While connecting the status panel will show a countdown. If the link is successful this window will disappear and the main program window will indicate that a remote connection is established. You can now work as if connected to the remote machine.

Should the connection fail, the status box will say "Unable to Make Connection".

Part



15 Bitmap Selector

15.1 How To Use the Selector

As you will already be aware, the bitmap selector can be accessed from controls while *interactive intelligence* is in edit mode. When open the selector looks as shown in figure 42.

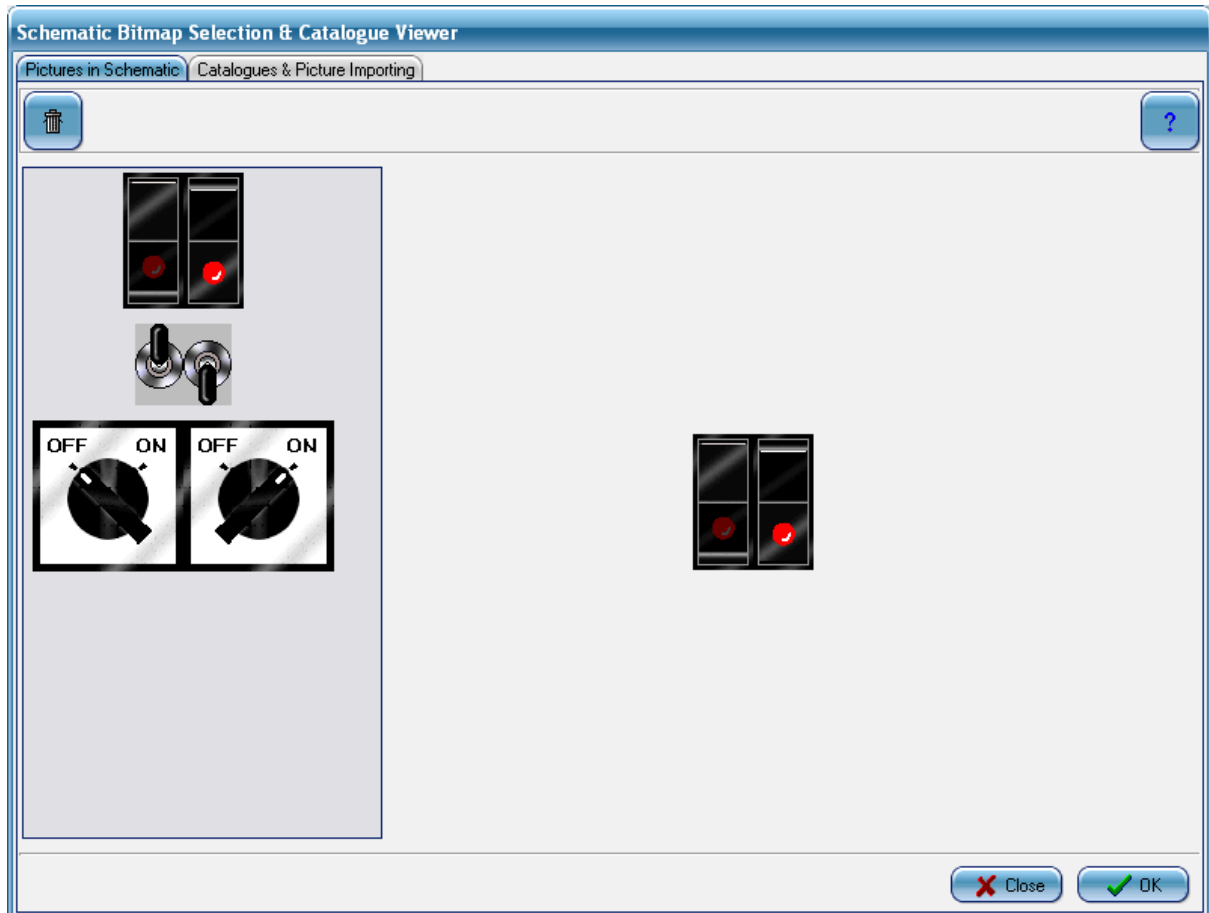


Figure 42

This window allows you to load a selection of pictures that can be used by any control on the schematic. These pictures are saved with the schematic, making it self contained and easy to distribute.

The pictures displayed on the left are those already loaded into the schematic and available for use. Selecting one of these and <Clicking> 'OK' will paste the selected picture back into the control that is being edited.

Selecting one of the pictures on the left and then <Clicking> the 'Remove' button will remove the picture from the schematic and it will no longer be available for any controls to use.

To add a new picture to the schematic and make it available for use, <Click> on the 'Catalogues & Picture Importing' tab. The window will change to look as shown below.

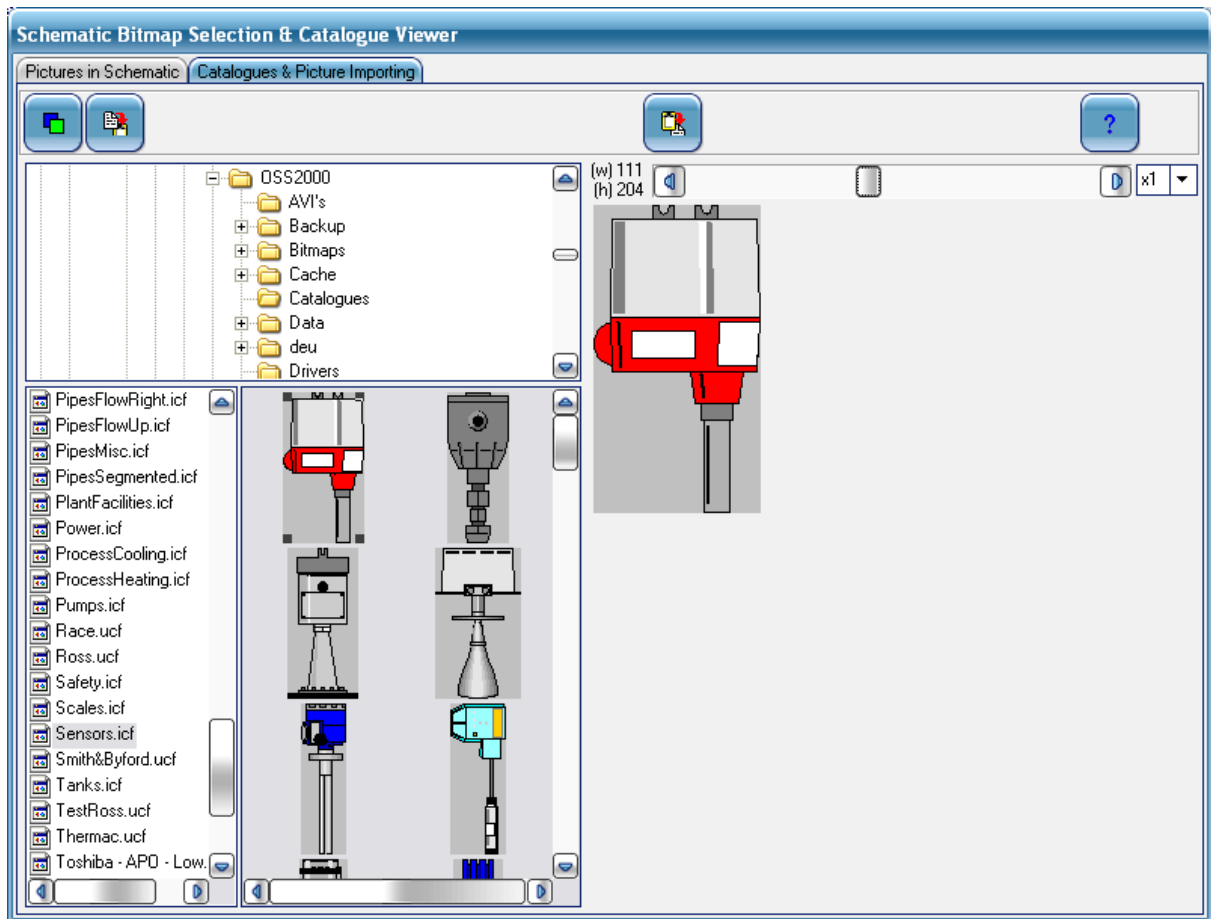


Figure 42-A

The top left panel allows you to navigate to the directory where your required catalogues, bitmaps or metafiles reside. (The picture catalogues have the extension ".ICF" for catalogues supplied with *interactive intelligence* and ".UCF" for user created catalogues).

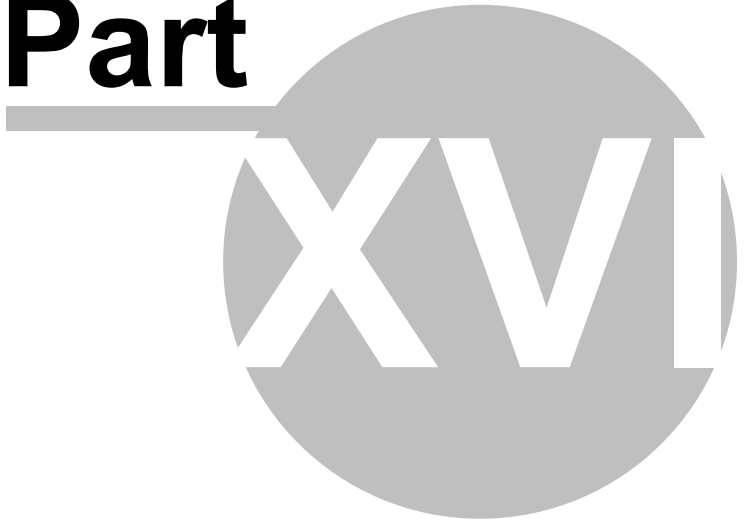
The bottom left panel allows you to select the required catalogue, bitmap or metafile.

The middle panel will display the contents of the selected catalogue, the selected bitmap or the selected metafile.

Once a picture has been selected it can be re-sized with the slider in the right panel. Once happy with your selection you can either <Click> the '*Paste*' button to add the picture to the schematic and then load more pictures, or <Click> on the '*OK*' button to add the picture to the schematic, paste it into the control being edited and automatically close the bitmap selector.

If the type of picture selected is a metafile, the background colour can be changed with the '*Backcolour*' button.

Part



16 Catalogue Viewer

16.1 Symbols And Catalogues

interactive intelligence is supplied with approximately 3000 graphic symbols for you to use in controls or paste into your schematic backdrops. These graphics are stored in catalogue files, each representing a different subject. Subjects covered range from ASHRAE symbology through to sensor and ducting graphics, 2 state switches and fan animations.

In order to allow easy selection of these pictures we have provided a catalogue viewer. This tool can be selected from:

- The utilities menu.

The catalogue viewer is shown in figure 43.

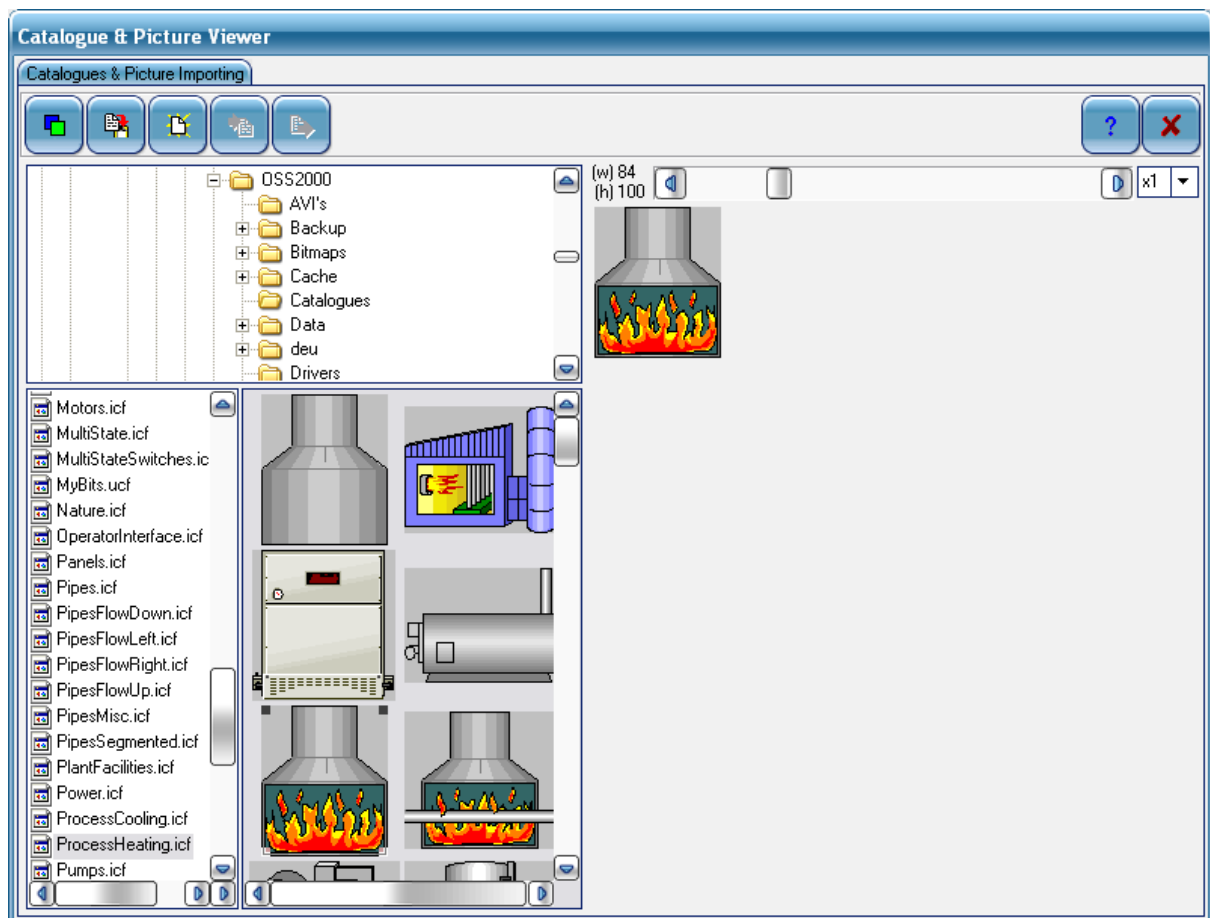


Figure 43

The top left panel allows you to navigate to the directory where your required catalogues, bitmaps or metafiles reside. (The picture catalogues have the extension ".ICF" for catalogues supplied with *interactive intelligence* and ".UCF" for user created catalogues).

The bottom left panel allows you to select the required catalogue, bitmap or metafile.

The middle panel will display the contents of the selected catalogue, the selected bitmap or the

selected metafile.

If the type of picture selected is a metafile, the background colour can be changed with the '*Backcolour*' button.

Once a picture has been selected it can be re-sized with the slider in the right panel. Once happy with your selection you can <Click> the '*Copy*' button to copy the picture to clipboard.

To create your own catalogues, <Click> the '*New Catalog*' button and then enter a name.

To add pictures to your own catalogues you select the catalogue in the lower left panel, then <Click> the '*Add To Catalog*' button. A browser window will open (as shown below) to allow you to select the required picture from your hard drive or network drive.

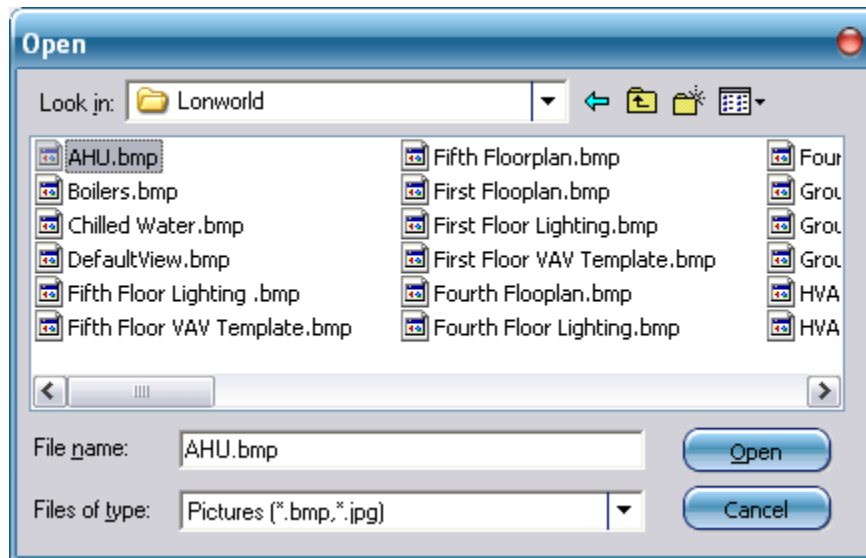


Figure 44

When a picture is selected from a user catalogue, <Clicking> the delete button will remove the selected picture from the catalogue.

Part



17 Translation Editor

17.1 Using The Translation Editor

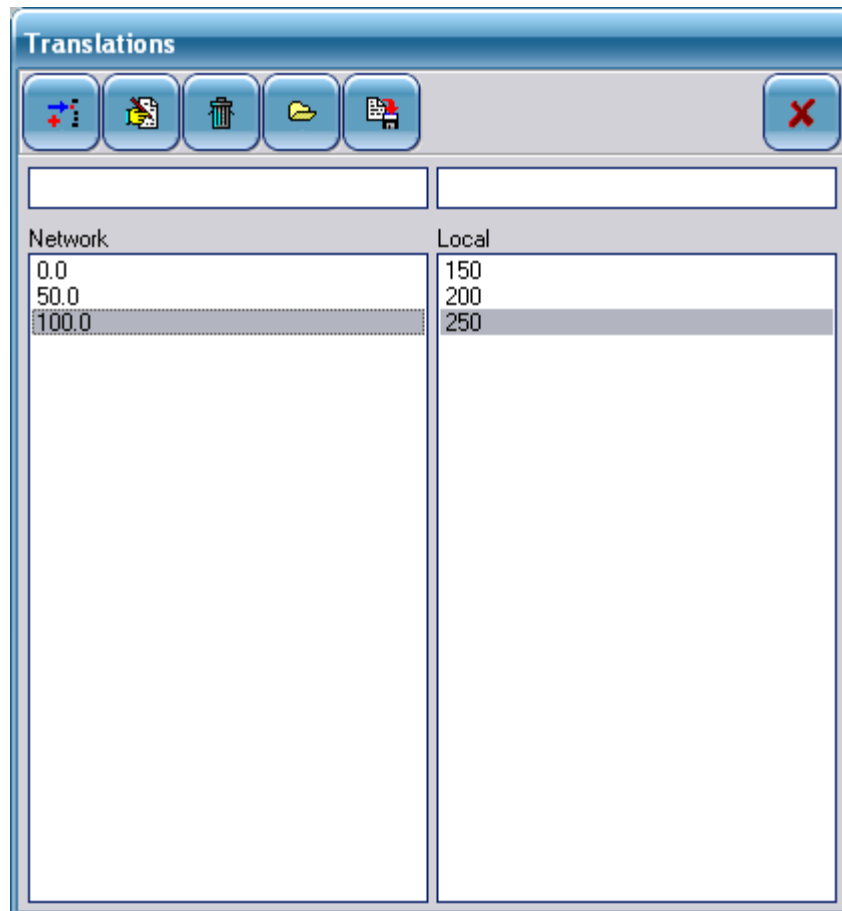


Figure 45

Translations are used to modify data between a control and the device driver.

Data in the left panel will be sent to or received from the driver and data in the right panel will be displayed or used by the control.

Translations can be added or removed from the list for each control as required. Translations can also be saved to and loaded from file.

To add a translation, put the required data into the two edit box's then <Click> the 'Add' button or press <Enter>.

To remove a translation, highlight it in the list then <Click> the 'Delete' button.

To modify a translation, highlight it in the list then enter the new data in the correct edit box and <Click> the 'Modify' button.

Part



18 Backup & Restore

18.1 Backup

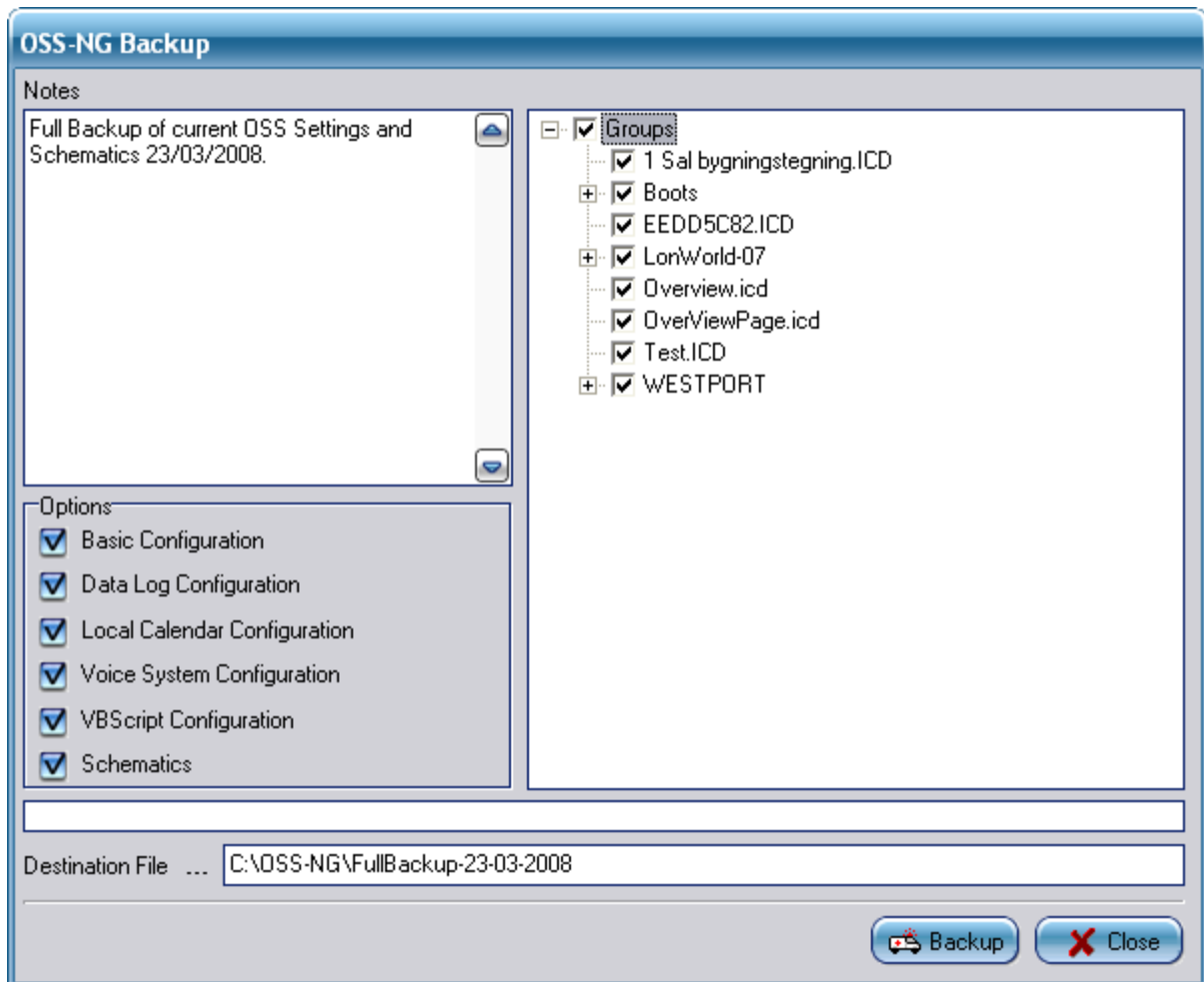


Figure 46

interactive intelligence now has a full backup facility. This is accessed via the 'File', 'Backup' menu options.

From the backup window you can select all, none or part of the setup along with any required schematics.

18.2 Restore

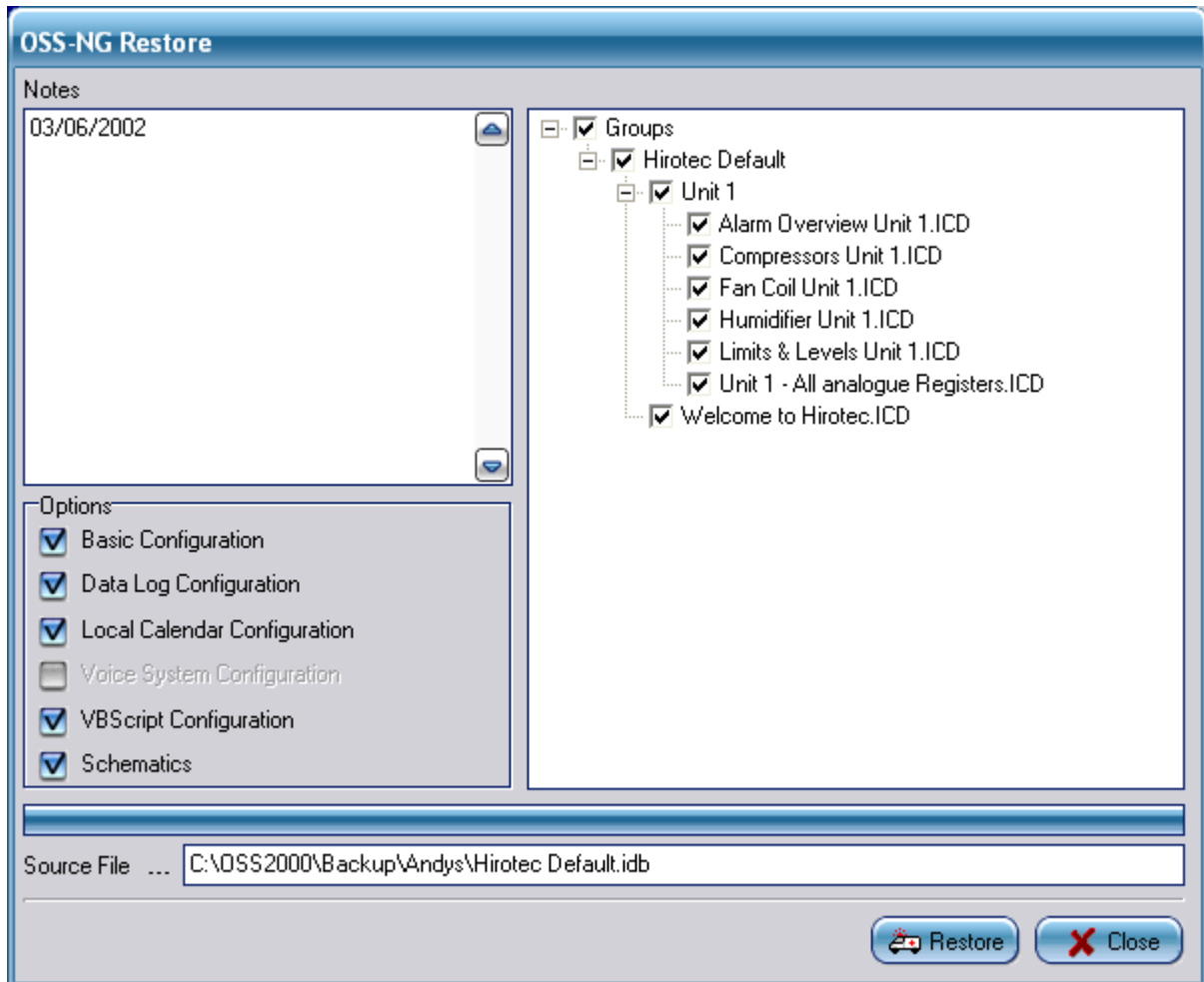
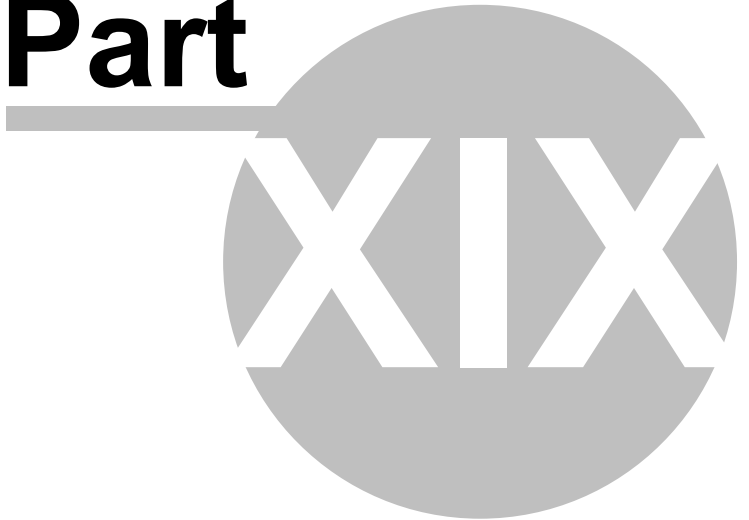


Figure 47

interactive intelligence now has a full restore facility. This is accessed via the 'File', 'Restore' menu options.

From the restore window you can select all, none or part of the setup along with any required schematics to be restored from the selected backup file.

Part



19 Creating Device Drivers

19.1 What is a Device Driver

A device driver is a small add-on program that works with *interactive intelligence* to send and retrieve data from some system. Drivers can be written using our driver development toolkits.

19.2 How To Create A Driver For interactive intelligence

Device drivers can be written by anyone in any language that supports the OLE automation model and supports the use of OCX's.

A *Driver Development Toolkit* is available by contacting support.

This toolkit consists a setup program that will install an OCX file and documented driver examples written in Visual Basic, C++ and Delphi. The examples are working '*shell*' drivers that have no content for sending or receiving data from a device.

The examples can be used as a starting point for your own driver or as a guide when starting from scratch.

Also available is a driver certification program. This is not mandatory but those who wish to prove to customers that their drivers are fully *interactive intelligence* compatible may find this of interest. Example certificates are shown in appendix B.

For further information please contact support.

Part



20 Appendix A

20.1 Recommendations

20.1.1 Modems

Some older voice/fax modems do not correctly operate with Windows 95™

If you are having problems we can recommend the following modem:

Hayes Accura 56K Speakerphone

20.1.2 Microphones

When recording voice files with *interactive intelligence* we found that certain microphones did not produce good quality recordings and contained a lot of background noise.

After much testing we can recommend the following microphone:

Labtec LVA-8550

This headset/mic combination supports NCAT2 noise cancelling technology and produces good quality sound files.

20.1.3 Sound Cards

Sound cards play an important part in determining the quality of voice files recorded in *interactive intelligence*.

We recommend Creative Lab SoundBlaster sound cards.

20.2 Voice System & NT4

NT 4 does not support voice modems.

This is not a problem with *interactive intelligence*, just an omission in the operating system.

Microsoft did not provide voice device drivers with NT4. Therefore, whilst *interactive intelligence* is capable of running the voice system on NT, it is not possible because the drivers do not exist.

Microsoft have said in the past that they would produce the required drivers for NT 4 but have to date failed to do so.

However, it may be possible that certain modem manufacturers may supply a driver for NT to support their modems. This would allow you to use *interactive intelligence's* voice capabilities under NT 4.

The next version of NT is apparently to come with the required drivers for voice support.

20.3 Required Voice Files

Several WAV files are required in order for the voice system to function correctly.

These files are installed into the "\\ProgDir\Data\VoiceFiles\" directory. You may re-record them if needed but do not delete them.

The list of files is.

Ack.wav
Nak.wav
Greeting.wav
Badpassword.wav
Noaccess.wav
Goodbye.wav
On.wav
Off.wav
Overflow.wav
Point.wav
Play0.wav
Play1.wav
Play2.wav
Play3.wav
Play4.wav
Play5.wav
Play6.wav
Play7.wav
Play8.wav
Play9.wav

20.4 Notes

- When in edit mode the user can move currently selected controls with the arrow keys. Holding down the CTRL key or SHIFT+CTRL while moving the control will accelerate movement. Holding down the ALT key will move the selected controls all the way in the direction of the arrow key pressed.
- When in edit mode multiple controls can now be selected by holding down the CTRL key and clicking the required controls with the mouse. These selected controls can then be moved as described below. Click the mouse anywhere to deselect.
- When in edit mode, multiple selected controls can now be Copied, Pasted & Deleted as well as Moved.
- The catalogue viewer now allows users to create their own picture catalogues and add and delete bitmaps.

20.5 Examples

20.5.1 VBScript Examples

This topic shows examples of how to use some of the functions that we have added to VBScript.

Example 1

This example shows how to get a value from a device, pass the retrieved value back to another

function to be operated on and then how to send a new value to another device and deal with the acknowledge/not-acknowledged response.

Sub GetOutsideAirTemp()

 GetValue DRIVER1, "S6(V)", "20", "11", "DecideRoomSetpoint"

End Sub

Sub DecideRoomSetpoint(OAT)

If OAT = "NAK" **or** OAT = "INV" **Then**

 CreateAlarm "Could not retrieve setpoint from Device 20 on Network 11"

Elseif OAT > 17 **Then**

 SendAnalogueValue DRIVER1, "K1(V)", "36", "11", "20.0", "5341", "SetpointWriteResponse"

Else

 SendAnalogueValue DRIVER1, "K1(V)", "36", "11", "21.5", "5341", "SetpointWriteResponse"

End If

End Sub

Sub SetpointWriteResponse(RESPONSE)

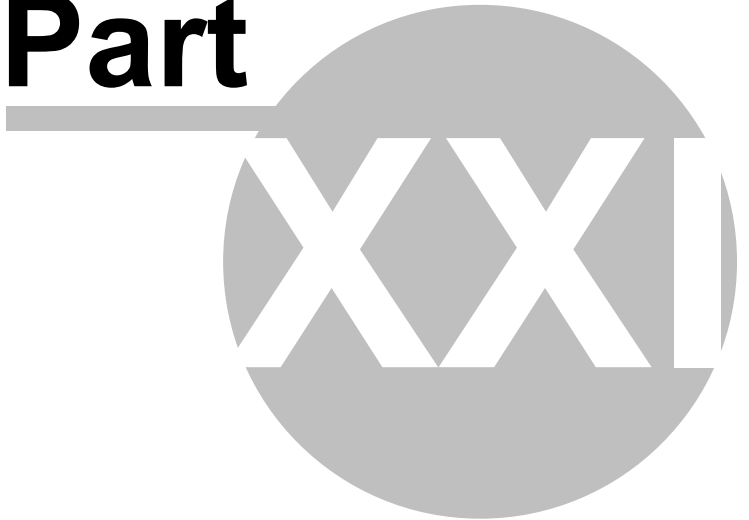
If RESPONSE <> "ACK" **Then**

 CreateAlarm "Could not write new setpoint value to Device 36 on Network 11"

End If

End Sub

Part



21 Appendix B

21.1 Certified Driver Certificate

If a driver has been certified by Open System Solutions an electronic certificate similar to the one below can be viewed from the driver setup page.



If a driver is NOT certified, the certificate will look as shown in the following topic.

21.2 Non Certified Driver Certificate

If a driver has NOT been certified by Open System Solutions a window similar to the one below can be viewed from the driver setup page.



Part



22 Appendix C

22.1 Drivers

This appendix contains information about some of the drivers that are either included with or are available to work with *interactive intelligence*.

Drivers currently covered are...

- LnsDriver
- TrendDriver
- ModbusDriver
- SeaChangeSltDriver

22.2 Introduction

22.2.1 About this document

Driver Info V1.4

This document has been produced to describe operations of interactive intelligence that are specific to individual drivers.

This information should be used in conjunction with the interactive intelligence program.

Each of the following chapters describes a specific driver and its unique functionality.

This document will be updated and added to over time.

22.3 LonWorks Driver

22.3.1 Overview

LnsDriver.exe

The interactive intelligence LonWorks™ driver is designed to interface with any LonWorks compatible network.

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interactive intelligence is an unregistered trademark of Open System Solutions Limited and its Licensors.

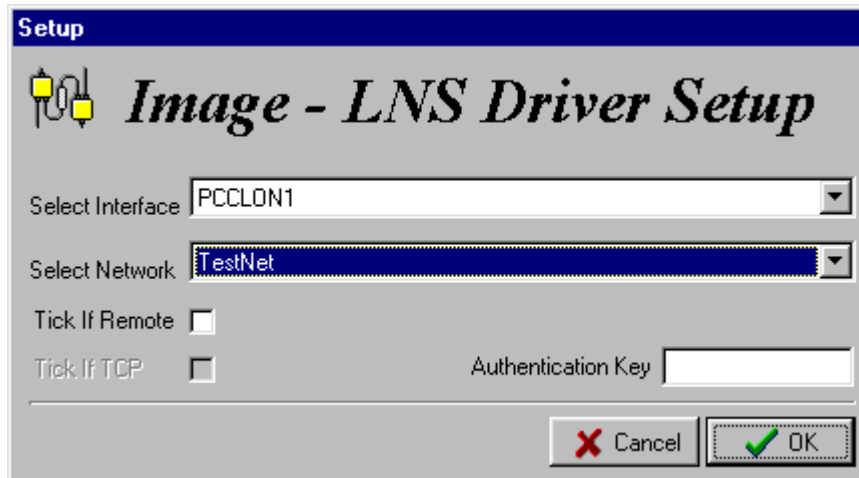
Features that are specific to this driver are:

- Network Variable Selection
- Alarm Binding and Management
- LNS Plug-In Selection and Launch

Each of the following topics explains one of the above functions.

22.3.2 Driver Setup

The setup window (accessed via *interactive intelligence* 'Setup - Driver' menu option) needs to have communications parameters set correctly for your installation.

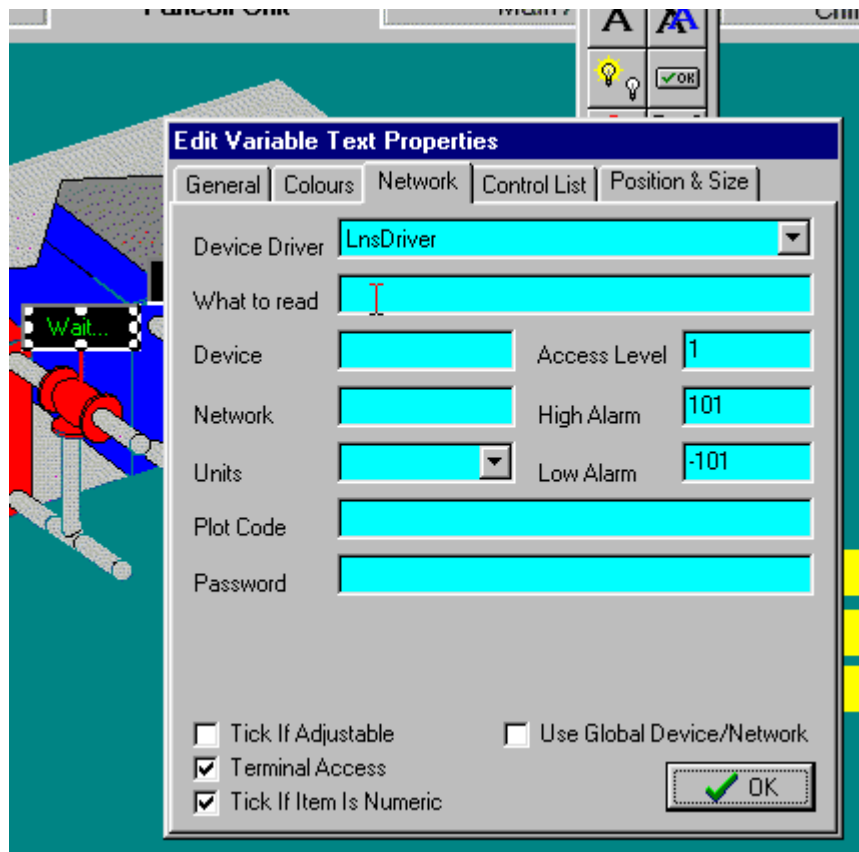


From this window you select the appropriate interface and network and can also determine if the driver is remote from the LNS server.

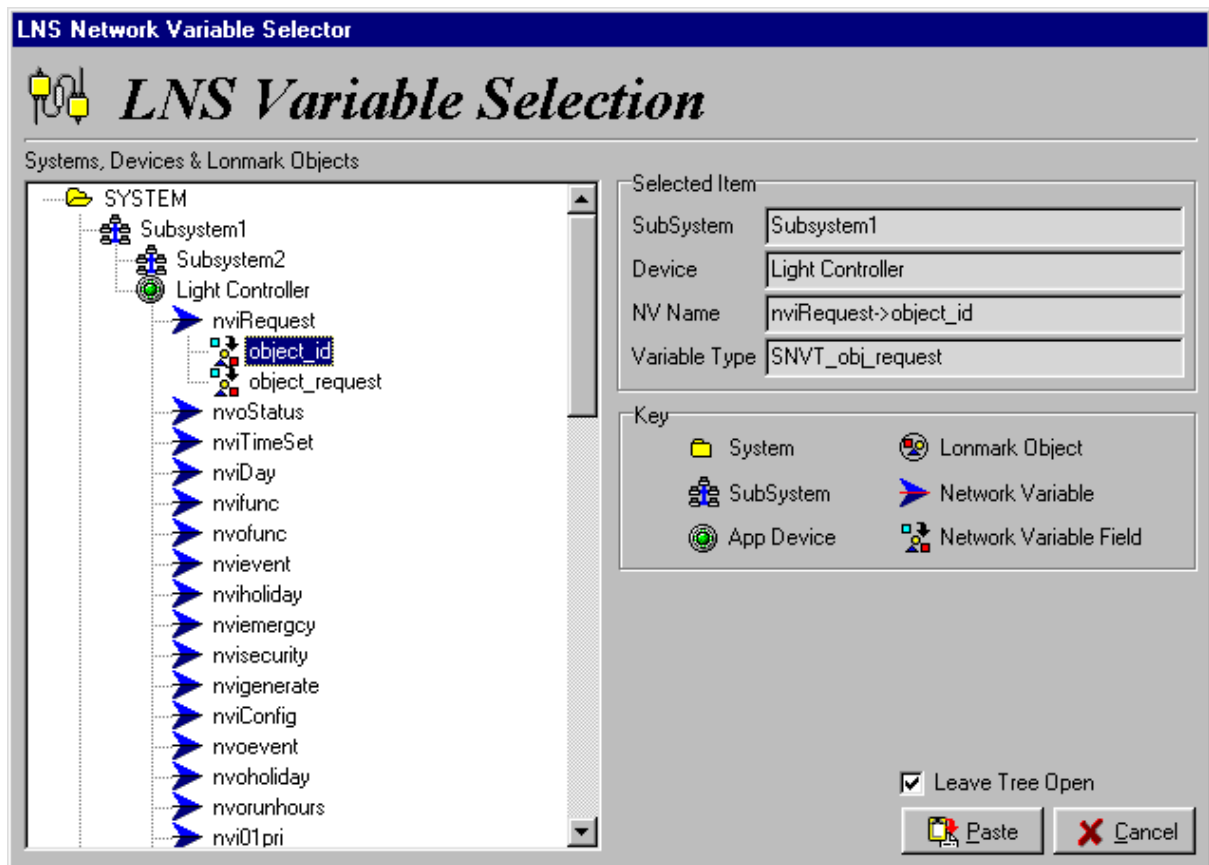
22.3.3 Network Variable Selection

When interactive intelligence is in edit mode, placing a control on the schematic or <Double Clicking> on an existing control opens a property editor specific to the control type. The following picture shows the property editor for a *Variable Text* control.

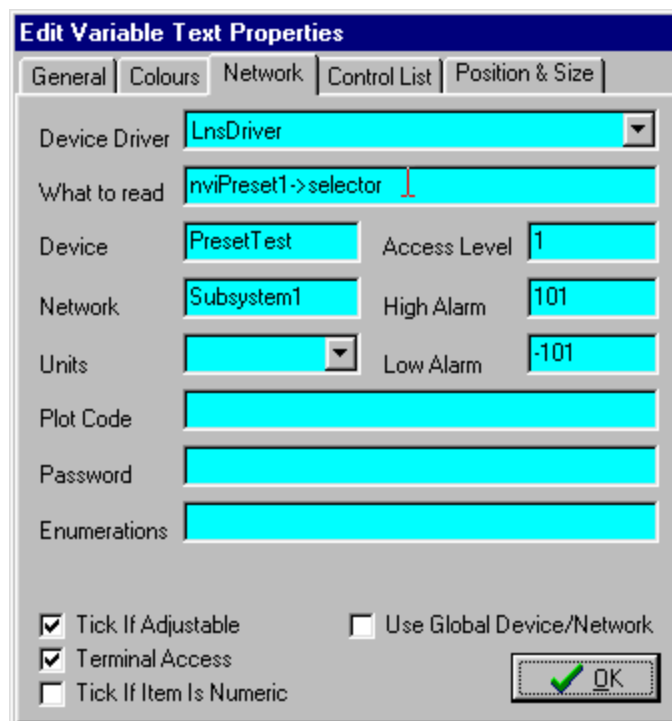
Three fields (*What To Read*, *Device*, *Network*) have to be filled with information so that the control knows where on the network to read information from.



When the LonWorks driver is being used, <Double Clicking> on the What To Read field will open a window (shown below) which allows you to select the device and network variable that you wish the control to read from.



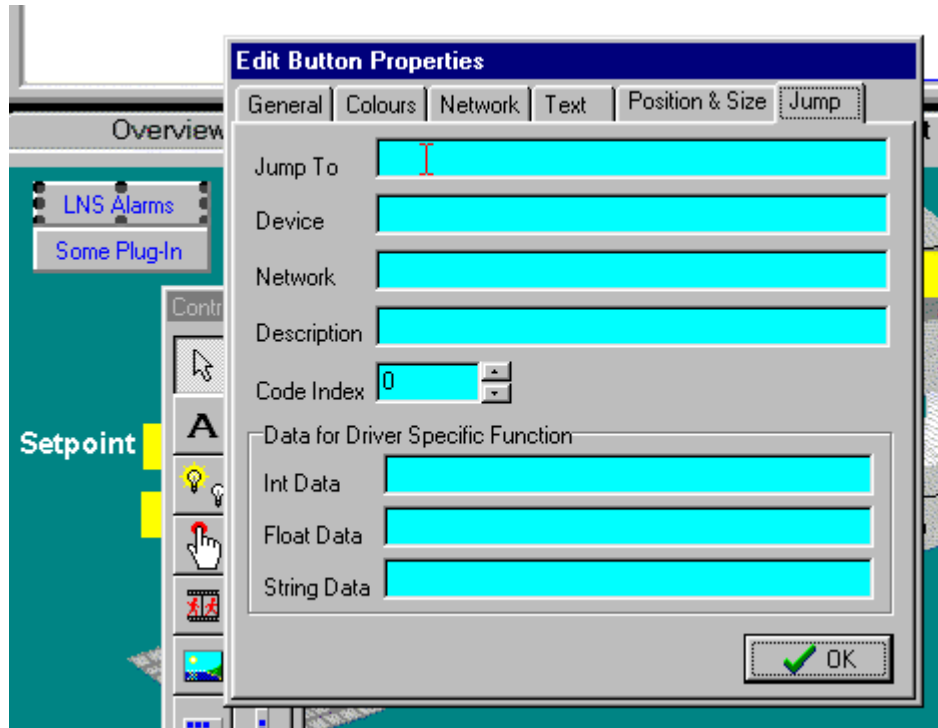
After you have selected the required network variable <Clicking> on the *Paste* button will paste the necessary information back into the button property editor as shown in the following picture.



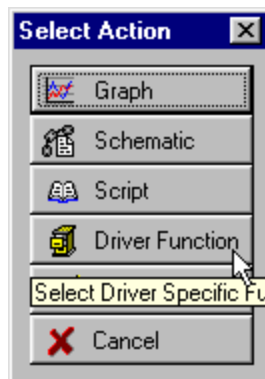
22.3.4 Alarm Binding and Management

In order to access the alarm management functionality of the interactive intelligence LonWorks driver you will need to <Right Click> on the LnsDriver icon in the Windows System Tray and select *Driver Functions/Bound & polled Alarm Editor* or place a button control on a schematic and follow these steps.

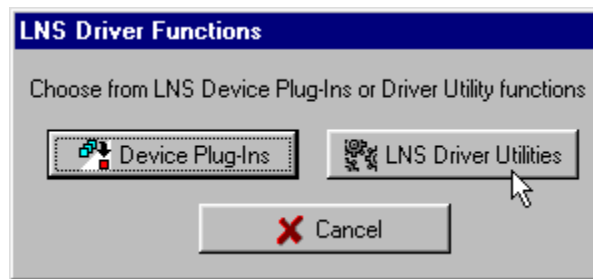
Set the driver to the LnsDriver on the *Network* tab and then go to the *Jump* tab. <Double Click> on the *Jump To* field as shown below.



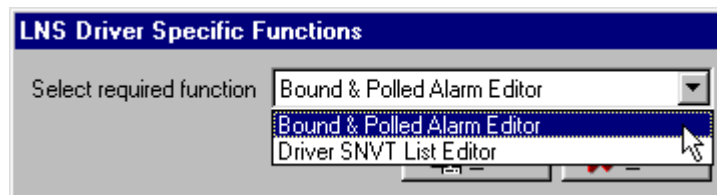
This will cause the following window to display.



<Clicking> the *Driver Function* button will open the following window.

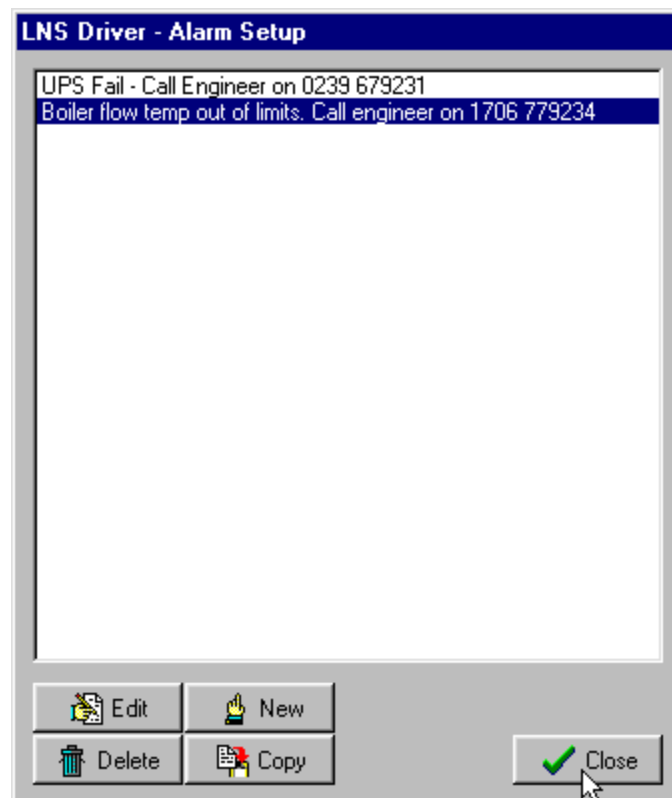


Now <Click> on the *LNS Driver Utilities* button to display the following window.



From the drop down list select the *Bound & polled Alarm Editor* option. <Clicking> the Paste button will paste the necessary information back into the button property editor.

When interactive intelligence is in run mode and your button is <Clicked> by the user an alarm list will open as shown here.



From this window you can add, edit or delete points to be monitored as alarms.

As an example we will add a new point to be monitored. <Clicking> on the *New* button will change the window to look as follows.

<Double Clicking> on the *What To Monitor* field will display the *Network Variable Selector* window as discussed in the previous topic to allow you to choose the item to be monitored.

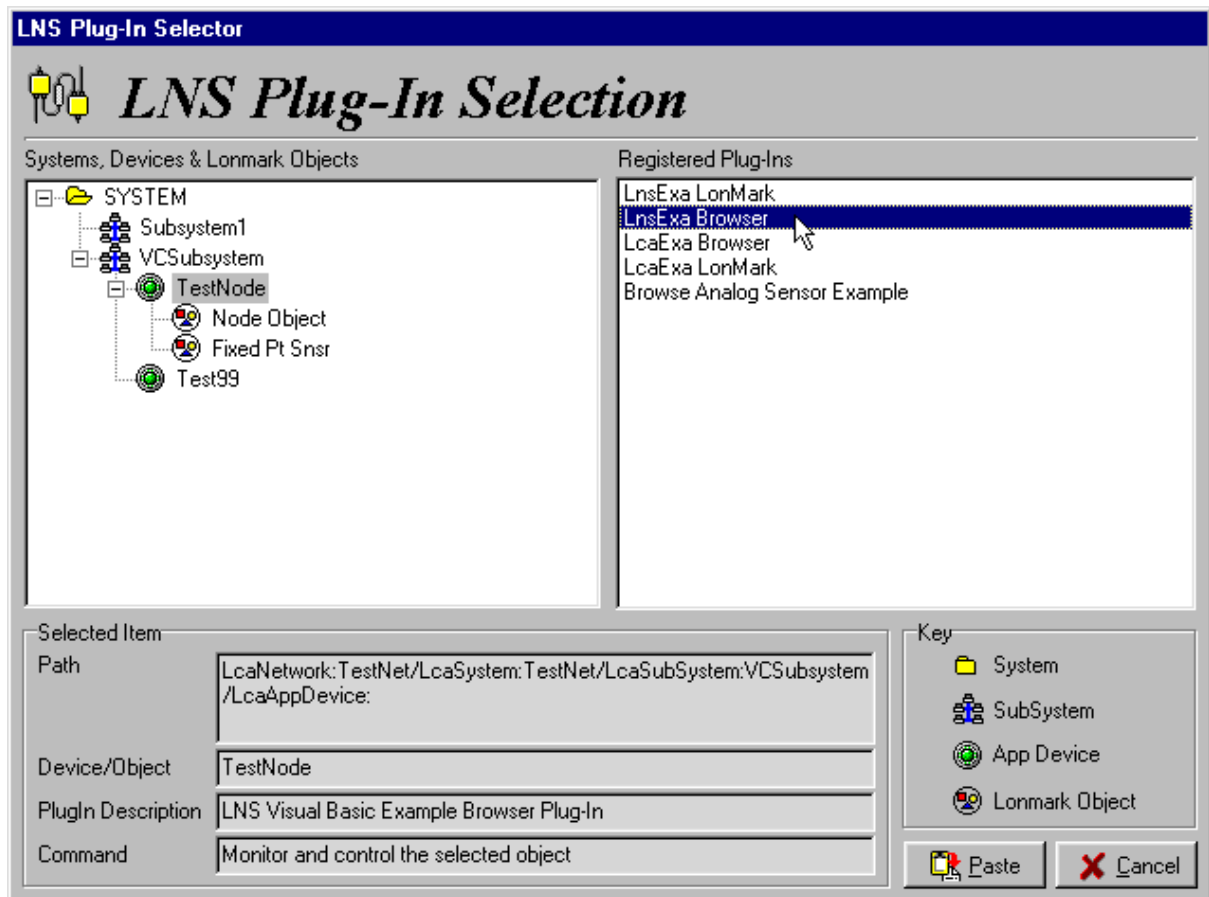
On this form you can enter a text string that is sent to interactive intelligence when the alarm condition occurs or clears. You can also set various other parameters that relate to the alarm (i.e. is it bound or polled, is it digital, high and low levels).

Network Variable Inputs can not be bound and must be polled. Normal practice would be to bind all outputs.

22.3.5 LNS Plug In Selection and Launch

In order to access LNS Plug-Ins from interactive intelligence you will need to place a button control on a schematic and follow the procedure discussed in the previous topic until you are presented with this window.

This time <Click> on the *Device Plug-Ins* button. This will open a window (shown below) where you can select the required Plug-In and on which object to run it.



Once you have selected the required Plug-In <Clicking> the *Paste* button will paste the necessary information back into the button property editor.

When interactive intelligence is in run mode and your button is <Clicked> by the user, the required Plug-In will start.

22.4 ModBus Driver

22.4.1 Overview

ModbusDriver.exe

A device driver for interactive intelligence to communicate with ModBus based networks and controllers.

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interactive intelligence is an unregistered trademark of Open System Solutions Limited and its Licensors.

This driver can talk to modbus controllers with either ASCII or RTU via a serial port, across a TCP network to a suitable server using the Modbus MBAP protocol.

22.4.2 Driver Setup

The setup window (accessed via *interactive intelligence* 'Setup - Driver' menu option) needs to have communications parameters set correctly for your installation.

Configurable options are:

• Serial Connection

Com Port: Which serial port to use.
 Baud rate: What data rate to use.
 Parity: What type of parity checking to use.
 Stop Bits: How many stop bits to use.
 Protocol: How to communicate with controllers

ASCII
 RTU
 MBAP across TCP/IP

Timeout: How long to wait for a response from a controller.

Active Delay: When using RTS/CTS handshaking, how long to wait after RTS is set before sending data (default 10 ms).

Inactive Delay: When using RTS/CTS handshaking, how long to wait after receiving data before clearing RTS (default 10 ms).

RTS Handshake: Whether to use RTS/CTS handshaking.
 DTR Handshake: Whether to use DTR handshaking.

• TCP Network Connection

IP address: IP Address of Modbus data server.
 Timeout: How long to wait for a response from a controller.
 Protocol: How to communicate with controllers

ASCII
RTU
MBAP across TCP/IP

- **Modem Connection**

Modem: Select Modem to use for connections.
Timeout: How long to wait for a response from a controller.
Protocol: How to communicate with controllers

ASCII
RTU
MBAP across TCP/IP

- **Enable Connections**

Serial: Allow this driver to use serial connections.
Network: Allow this driver to use TCP connections.
Modem: Allow this driver to use modem connections.

22.4.3 Setting up interactive intelligence Controls

This driver can read & write

- HOLDING REGISTERS
- COIL STATUS

And can read

- INPUT REGISTERS
- INPUT STATUS

Data from INPUT REGISTERS & HOLDING REGISTERS can be displayed in various formats as described here:

- **16 Bit Unsigned Decimal Value**

This reads 1 register and displays a value from -32768 to +32767

- **16 Bit Signed Decimal Value**

This reads 1 register and displays a value from 0 to +65535

- **Single Precision Floating Point Value**

This reads 2 consecutive registers and interprets the data as a 32 bit IEEE format floating point value.

- **WORD Swapped Single Precision Floating Point Value**

This reads 2 consecutive registers and interprets the data as a 32 bit floating point value with the 2 16 bit words swapped (some controllers store their data in this format).

- **Double Precision Floating Point Value**

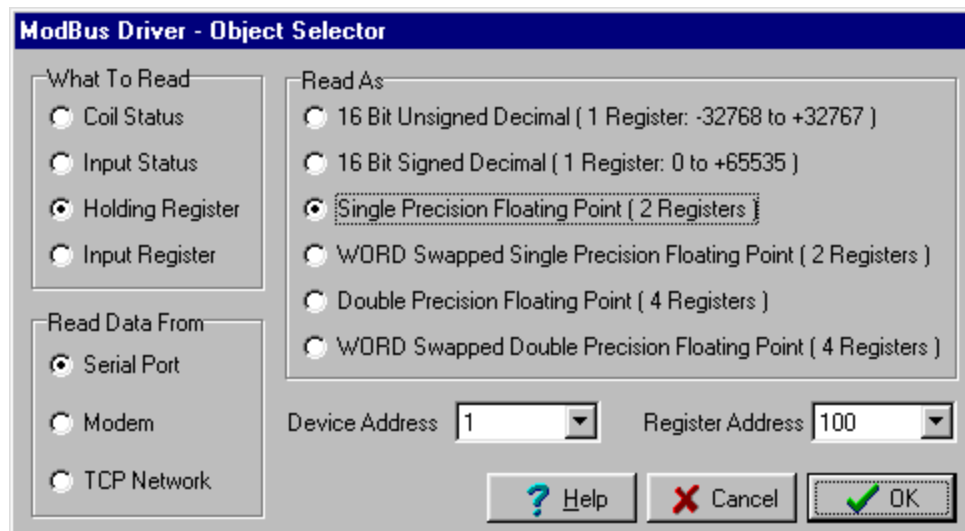
This reads 4 consecutive registers and interprets the data as a 64 bit IEEE format floating point value.

- **WORD Swapped Double Precision Floating Point Value**

This reads 4 consecutive registers and interprets the data as a 64 bit floating point value with the 4 16 bit words swapped (some controllers store their data in this format).

Data Entry Into interactive intelligence

<Double Clicking> on the Code, Device, or Network fields of interactive intelligence controls will open a window from which you can select an object to read. This will then paste back into interactive intelligence the correct entries for the respective fields.



Alternatively you can type in the object to retrieve as follows.

The Network field of interactive intelligence field should contain the address of the register to read i.e.

- 100 (all registers start at zero)

The Device field should contain the address of the device preceded by a letter that designates either a serial connection, modem connection or a TCP network connection i.e.

- S34 (device 34 via serial port)
- M34 (device 34 via modem)
- N34 (device via TCP network)

The Code field should contain the object and display method i.e.

- CS (Coil Status)
- IS (Input Status)
- HR-Udec (Holding Register - Unsigned 16 bit decimal)
- HR-Sdec (Holding Register - Signed 16 bit decimal)

- HR-Single (Holding Register – Single precision float)
- HR-ReversedSingle (Holding Register – Single precision float - reversed)
- HR-Double (Holding Register – Double precision float)
- HR-ReversedDouble (Holding Register – Double precision float - reversed)
- IR-Udec (Input Register - Unsigned 16 bit decimal)
- IR-Sdec (Input Register - Signed 16 bit decimal)
- IR-Single (Input Register – Single precision float)
- IR-ReversedSingle (Input Register – Single precision float - reversed)
- IR-Double (Holding Input – Double precision float)
- IR-ReversedDouble (Input Register – Double precision float - reversed)

22.5 SeaChange SLT Driver

22.5.1 Overview

SeaChangeSltdriver.exe

A device driver for interactive intelligence to communicate with SeaChange networks and controllers via the SeaChange SLT serial interface.

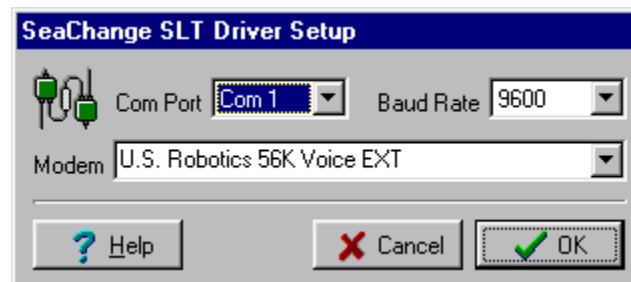
© Copyright 1999, 2009 S Brown. All right reserved.

SeaChange is a trademark of SeaChange Limited.

interactive intelligence is an unregistered trademark of Open System Solutions Limited and its Licensors.

22.5.2 Driver Setup

The setup window (accessed via *interactive intelligence* 'Setup - Driver' menu option) needs to have communications parameters set correctly for your installation.



Configurable options are:

- Com Port: Which serial port to use.
- Baud rate: What data rate to use.
- Modem: Select a modem for remote comms.

If you do not wish to communicate with remote sites, delete the text in the 'Modem' box.

If you do not have a local SLT connected, select 'Not Used' from the 'Com Port' list.

22.5.3 Setting up interactive intelligence Controls

You can type in the object to retrieve into interactive intelligence fields as follows.

The **Network** field of interactive intelligence field should contain *NA*.

The **Device** field should contain the address of the device i.e.

[B1]
[A1]
[B1CAS1]
[B1Z1]
[H1]

The **Code** field should contain the object to retrieve i.e.

S2(V)
I5(S)
K1(V)

Where an interactive intelligence control has a field called **Plot Code**, the full code for the plot should be entered ie:

[Z1]P1(V)

Where an interactive intelligence control has a field called **Timezone Code** enter information as follows:

[Z1] This will retrieve the 7 day time profile for zone 1
[Z2] This will retrieve the 7 day time profile for zone 2
[Z1]D8 This will retrieve the time profile for tomorrow in zone 1
[Z1]D9 This will retrieve the time profile for holidays in zone 1

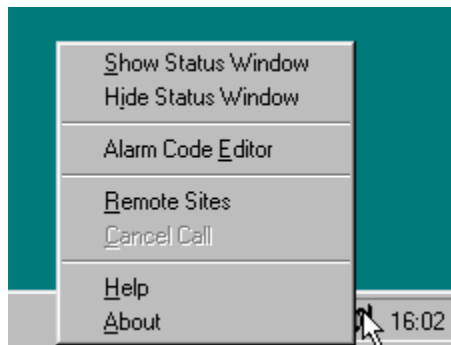
- **Note**

Although the time profiles for *tomorrow* and *holidays* only consist of 1 days worth of information, interactive intelligence shows it as 7 days all set the same. In this case adjustments should only be made to *Monday* (adjustments to the other days will have no effect on the zone).

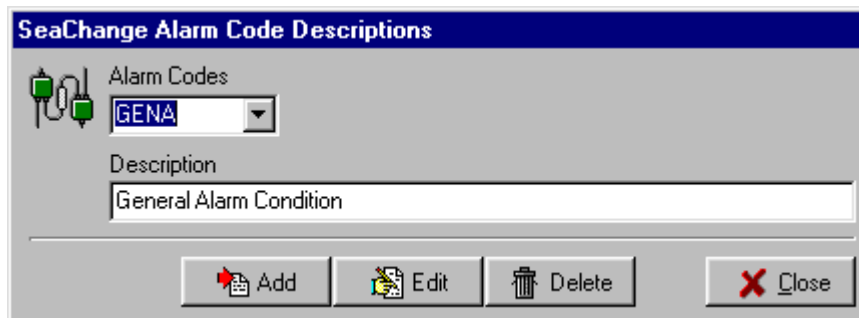
Also the **Time Periods** field should be set to 2 (for all zones including tomorrow and holidays)

22.5.4 Alarm Code Descriptions

<Right Clicking> on the SeaChange driver icon in the Windows task bar will pop-up the following menu

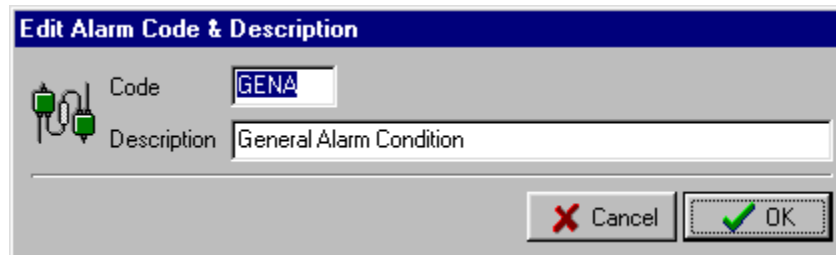


<Left Clicking> on the 'Alarm Code Editor' option will then display the following window.



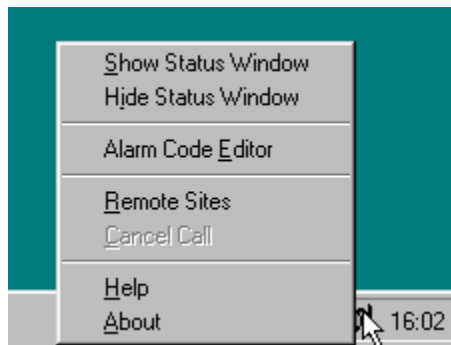
This window has a drop down list box that shows a list of SeaChange Alarm Codes. When selected the corresponding description is displayed in the 'Description' field.

To add a new code and description or to edit an existing pair <Click> the 'Add' or 'Edit' buttons respectively. This will cause an edit window to open as shown below.

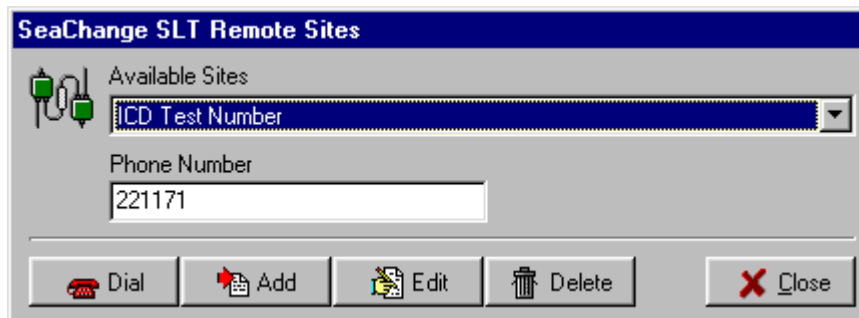


22.5.5 Remote Sites

<Right Clicking> on the SeaChange driver icon in the Windows task bar will pop-up the following menu



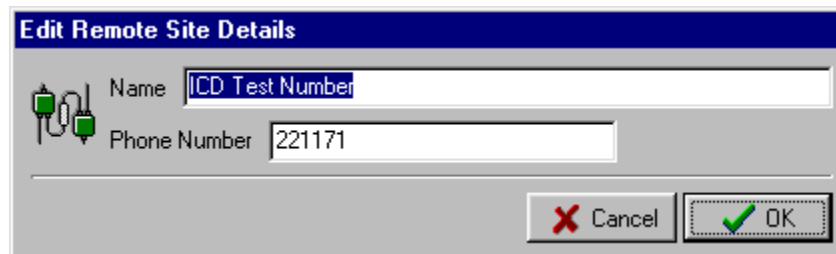
<Left Clicking> on the 'Remote Sites' option will then display the following window.



This window has a drop down list box that shows a list of remote sites. When selected the corresponding phone number is displayed in the 'Phone Number' field.

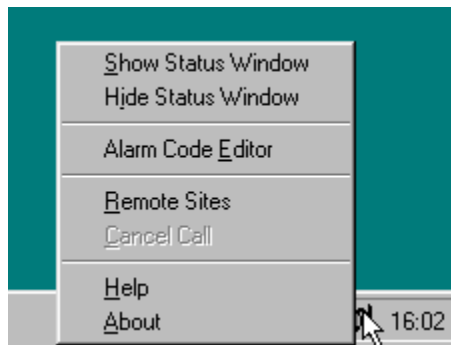
If a modem was selected for use during setup <Clicking> the 'Dial' button will connect to the remote site. All comms for this instance of the driver will then be directed via the modem.

To add a new site and phone number or to edit an existing pair <Click> the 'Add' or 'Edit' buttons respectively. This will cause an edit window to open as shown below.

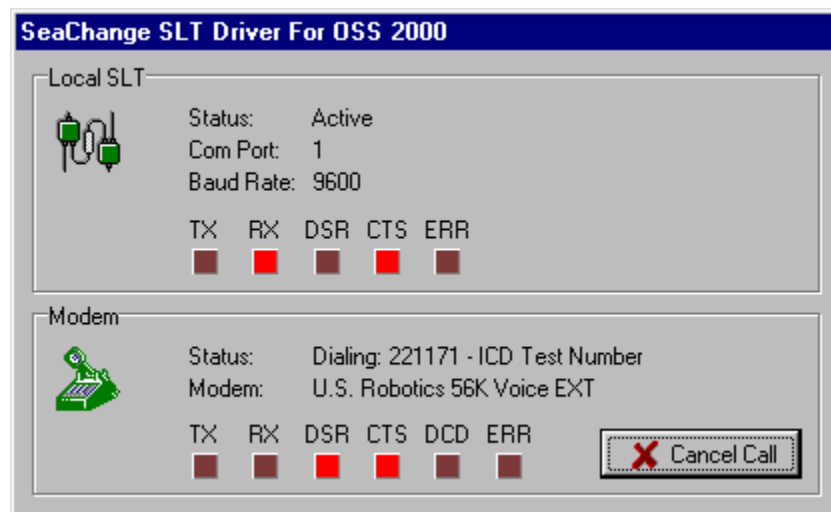


22.5.6 Status Window

<Right Clicking> on the SeaChange driver icon in the Windows task bar will pop-up the following menu



<Left Clicking> on the 'Show Status Window' option will then display the following window.



This window shows the current status of this instance of the SeaChange SLT driver. If an incoming or outgoing call is in progress the 'Cancel Call' button will be enabled to enable the user to terminate the call. A call can also be cancelled from the pop-up menu.

To close the status window <Click> on the 'Hide Status Window' option on the pop-up menu.

22.6 Trend Driver

22.6.1 Overview

TrendDriver.exe

A device driver for *interactive intelligence* to communicate with Trend™ 'IQ' controllers.
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 interactive intelligence is an unregistered trademark of Open System Solutions Limited and its Licensors.

22.6.2 Driver Setup

The setup window (accessed via *interactive intelligence* 'Setup - Driver' menu option) needs to have communications parameters set correctly for your installation. Configurable options are:

- Com Port: Serial port that the CNC is attached to.
- Baud Rate: Data speed to use (normally 9600).
- CNC Address: Address of CNC connected to this PC.

22.6.3 Setting up interactive intelligence Controls

This driver accepts standard text objects, which should be entered into the Code field of interactive intelligence.

The Network field should contain the Lan number and the Device field must contain the outstation address.

Example entries for the Code field of interactive intelligence

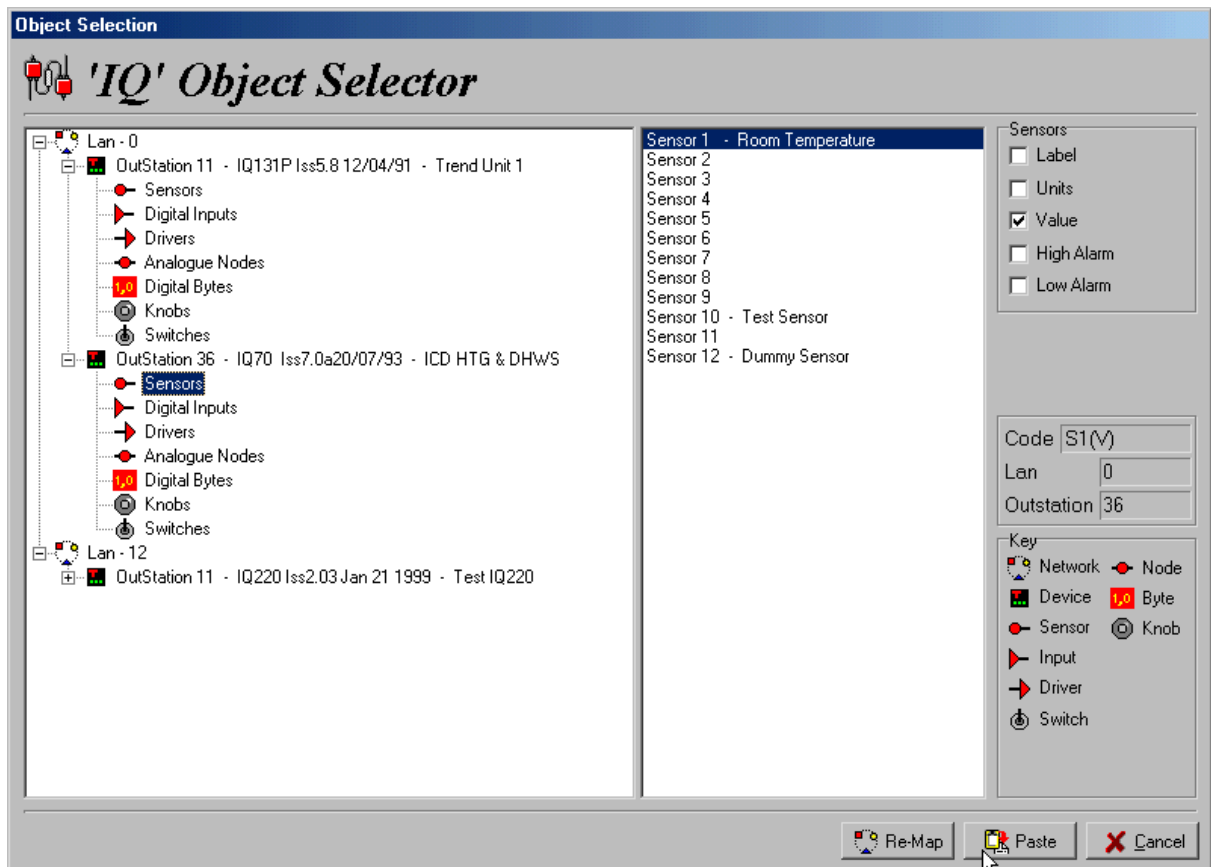
S1(V), K1(V), W2(S), A102(V), D4(Ss)

The only exceptions are for sensor plot codes and time zone codes, which should be as follow.

Z2C = Zone 2, current week
Z1S = Zone 1, standard week.

S3(LOG) = Plot attached to sensor 3
S1(LOG) = Plot attached to sensor 1

<Double Clicking> on the What To Read field will open a window (shown below) which allows you to select the variable that you wish the control to read from.



After you have selected the required network variable <Clicking> on the *Paste* button will paste the necessary information back into the property editor.

Random Communications

This version of the driver now supports the reading and writing of analogue nodes using the Random Communications protocol.

The Code of interactive intelligence field should be configured as follows.

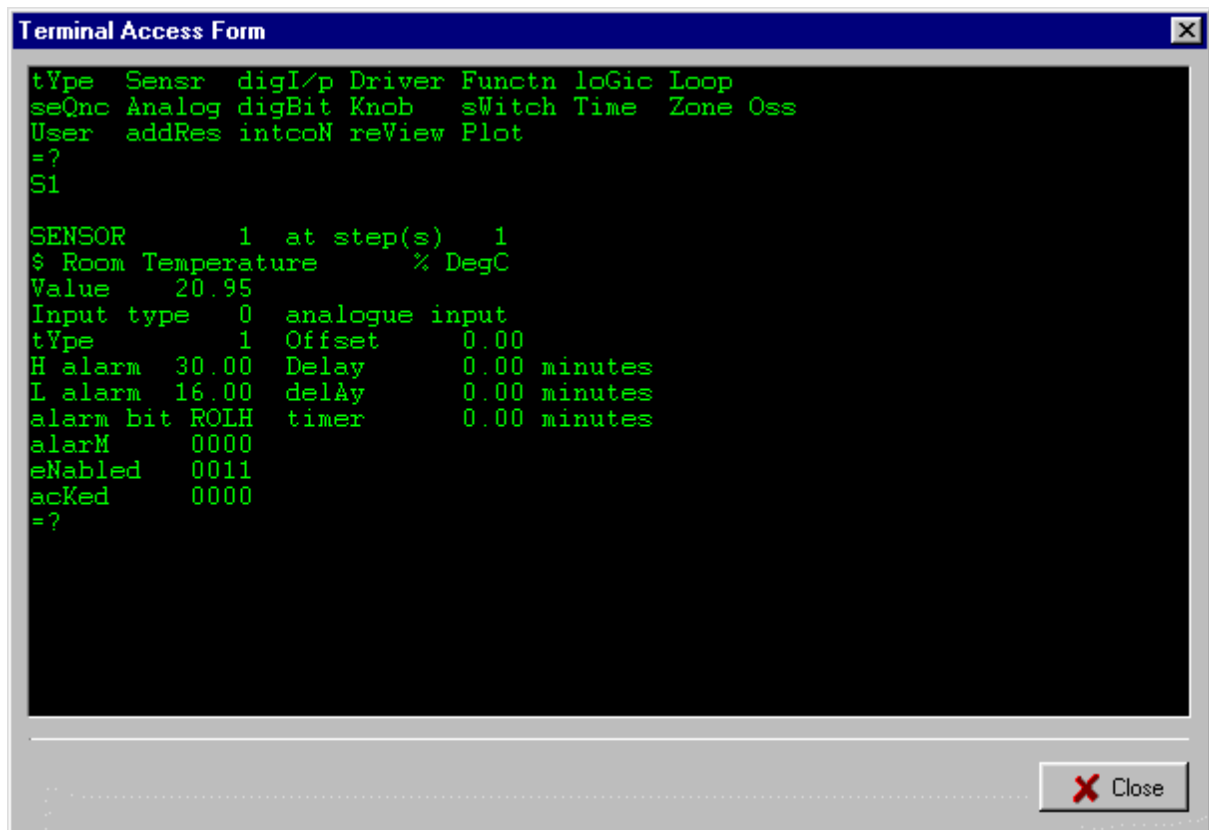
```
rA(221) = Analogue node 221
rA(107) = Analogue node 107
```

22.6.4 Terminal Mode

This driver supports the terminal mode of interactive intelligence, enabling configuration mode to be entered on a controller.

<Right Clicking> on a control in an interactive intelligence schematic will show a pop-up menu. From here you can invoke the terminal window.

When the terminal window is open, pressing <Ctrl> + <O> will enter configuration mode on the controller that the selected control was reading its display value from.



The image shows a 'Terminal Access Form' window with a blue title bar and a close button (X) in the top right corner. The window contains a terminal-style text display with green text on a black background. The text shows configuration details for a sensor, including its type, value, and various alarm and control parameters. At the bottom right of the window, there is a 'Close' button with a red X icon.

```
Terminal Access Form
tYpe  Sensr  digI/p  Driver  Functn  loGic  Loop
seQnc  Analog  digBit  Knob   sWitch  Time  Zone  Oss
User  addRes  intcoN  reView  Plot
=?
S1

SENSOR      1  at step(s)  1
$ Room Temperature  % DegC
Value      20.95
Input type  0  analogue input
tYpe      1  Offset      0.00
H alarm   30.00  Delay      0.00 minutes
L alarm   16.00  delay      0.00 minutes
alarm bit  ROLH  timer      0.00 minutes
alarM     0000
eNabled   0011
ackEd     0000
=?
```

Part



23 Appendix D

23.1 Plug-Ins

This appendix contains information about some of the Plug-Ins that are either included with or are available to work with *interactive intelligence*.

Plug-Ins currently covered are...

- OZM 2000 - Optimised Zone Module

23.2 OZM 2000 License Agreement

23.2.1 Software License Agreement

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23.3 OZM 2000 Introduction

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23.3.2 Optimised Zone Overview

The Optimised Zone Module is a "Plug-In" module used in the *interactive intelligence* software. To enable the Optimised Zone Module follow the instructions detailed in the "Plug-Ins" section of the *interactive intelligence* manual.

The Optimised Zone module consists of two sections. The first is the "timer functions" and the second is "Optimised Start" for devices. Optimised Start is covered later in this manual.

Zones can be created and scheduled to perform various functions on a daily basis at pre-determined times. Special days can be created to override normal daily operations.

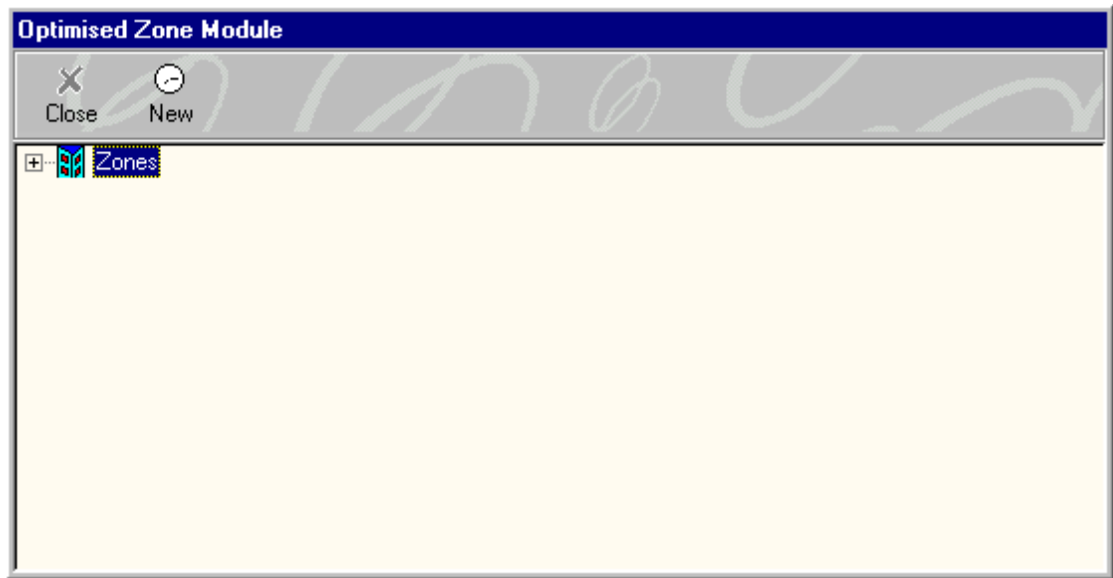
Functions that the scheduled timer can perform are:

- Change an analogue value in a device
- Change a digital value in a device

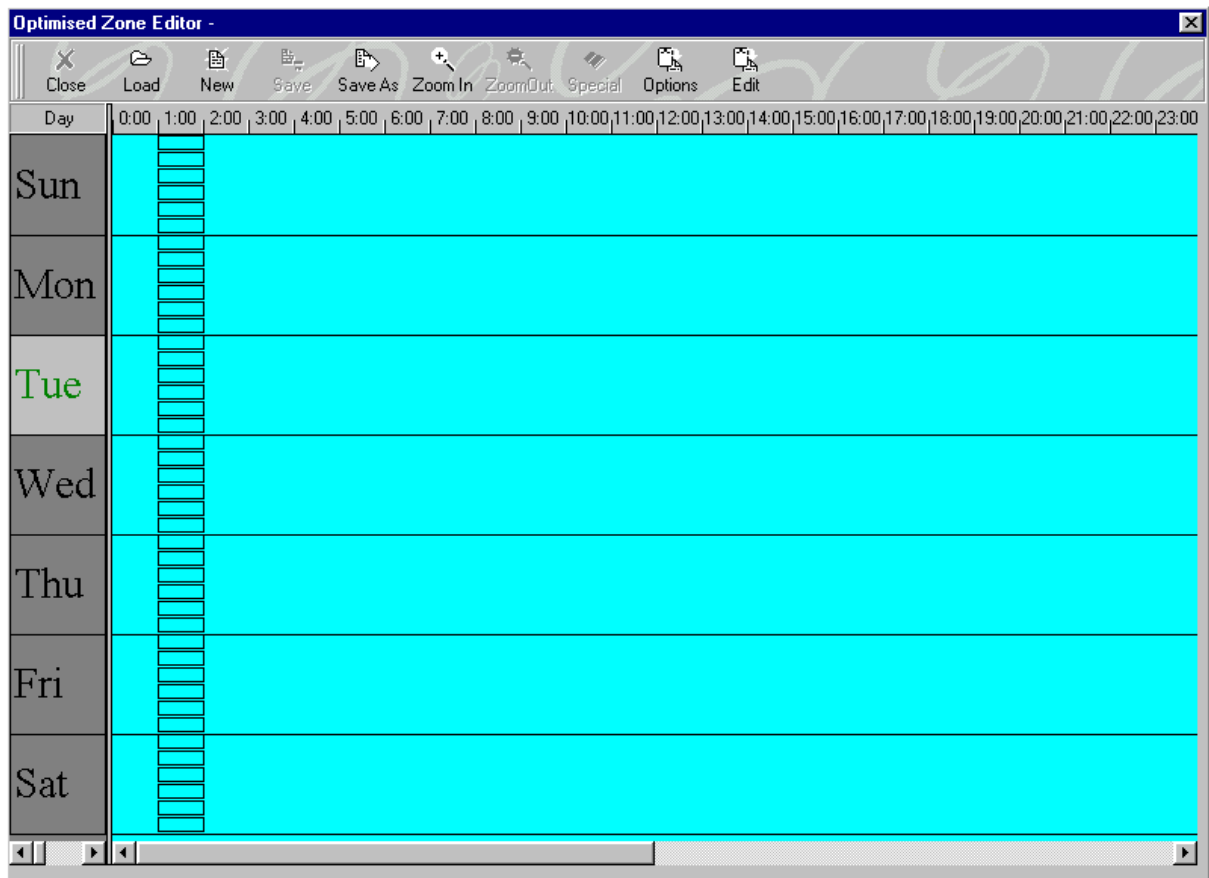
23.4 Using OZM 2000

23.4.1 Creating a Zone

To create or modify zone details, from the main menu select "*Setup*" then "*Optimised Zones*". The following window will be displayed:



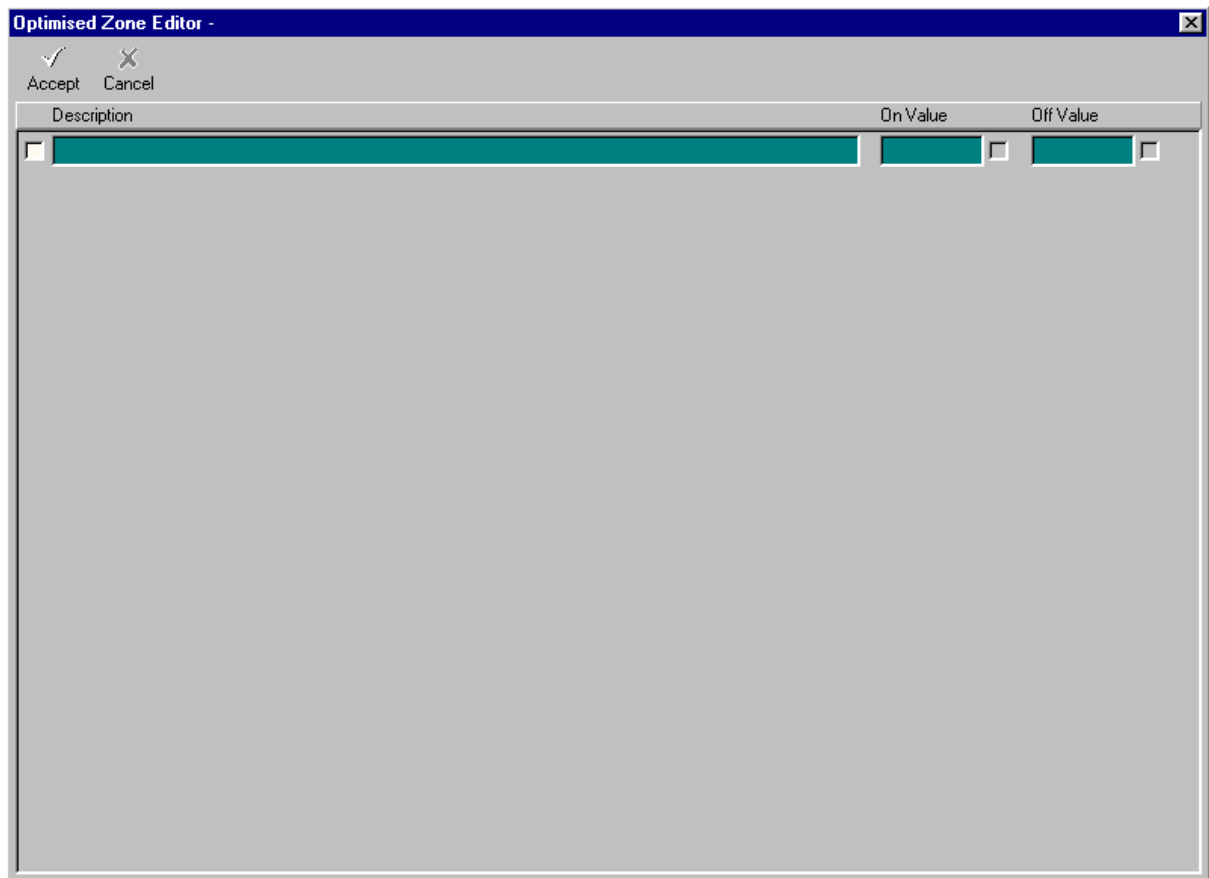
To create a new zone select "*New*" from the Optimised Zone Module toolbar. The following pop-up window will be displayed when "*New*" is selected:



This window shows a coloured bar for each On/Off period in each day. These bars can be dragged and re-sized with the mouse to give the required On/Off times. As each bar is dragged, the On/Off times are displayed above the bar. The On/Off periods can be copied to other days by:

- <Right Click> on the required On/Off period bar.
- Select "Copy" from the drop down menu.
- <Right Click> on the day/period required.
- Select "Paste" from the drop down menu.

To add or edit the operations completed during the On/Off period select "*Edit*" from the toolbar. The following screen will be displayed:



To enter the required operations:

- <Left Click> in the check box on the left hand side of the screen. This enables the operation. A tick will appear in the box and the following window will pop-up:

- <Left Click> in the "Description" box to enter details of the operation e.g. Turn Room 201 FCU On.
- < Left Click> in the "Driver" box and select driver being used.
- To enter the Code, Device and Network details double <Left Click> in the Code box. The LNS

Variable Selection screen will be displayed. To select the FCU and the variable required, <Left Click> on the variable required for the selected FCU. This will complete the table on the right hand side of the LNS Variable Selection screen. If the details are correct select "Paste".

- The details are automatically entered into the Data Entry table as shown below:

- The "On Value" and the "Off Value" fields must also be completed. If the operation is to turn the FCU on and off at the selected times, <Left Click> in the check boxes positioned next to "On Value" and "Off Value". Enter "1" in the "On Value" description box and "0" in the "Off Value" description box as shown below.

To allow the FCU to continue running, after the Off time, do not select the "Off Value" check box or enter "0" in the "Off Value" description box.

It is possible to change the analogue values (set point temperature, operating mode, fan speed etc.) when setting up the zone by selecting the correct variable from the LNS Variable Selection table. This function can be used to perform Night Setback operations. Enter the following data into the "On Value" and "Off Value" description boxes for operating mode change and fan speed changes etc.:

Parameter	Value
Mode	
Auto	0
Heat	1
Cool	3
Fan Only	9

Fan Speed

Auto 0
 Low 1
 Medium 2
 High 3

FCU On 1
 FCU Off 0
 Louver On 1
 Louver Off 0
 Software Priority On 1
 Software Priority Off 0
 Operation Ban On 1
 Operation Ban Off 0

- Select "OK" on the Data Entry table. This automatically updates the Optimised Zone Editor screen.

Example: Set up a zone to turn the FCU on. When the unit turns on the set point temperature must be 29°C, heating mode and high fan speed. When the FCU turns off the set point temperature must be 25°C and low fan speed. The screen below shows the Optimised Zone screen set for this application:

Description	On Value	Off Value
<input checked="" type="checkbox"/> Turn Room 201 FCU On	1	0
<input checked="" type="checkbox"/> FCU Operating Mode	1	
<input checked="" type="checkbox"/> FCU Fan Speed	3	1
<input checked="" type="checkbox"/> FCU Set Point Temperature	29	25
<input type="checkbox"/>		

When all of the operation details have been entered into the Optimised Zone Editor screen select "Accept" on the toolbar.

A pop-up window will be displayed to allow the user to enter the filename for the zone.

To enable the zone select "Options" from the main tool bar on the Optimised Zone Editor screen. The

following pop-up window will be displayed:

- <Left Click> on the "Zone Active" check box to enable the zone.
- If "Run if missed" is selected and the software was not running at the time and day that the zone operation should have occurred, next time the software is started the event will be triggered. **This box will normally be left un-ticked.**
- In the "Active Days" section <Left Click> on the days required for the zone to be active.
- Select "OK".

The Zone Setup pop-up window will close. On the Optimised Zone Editor screen:

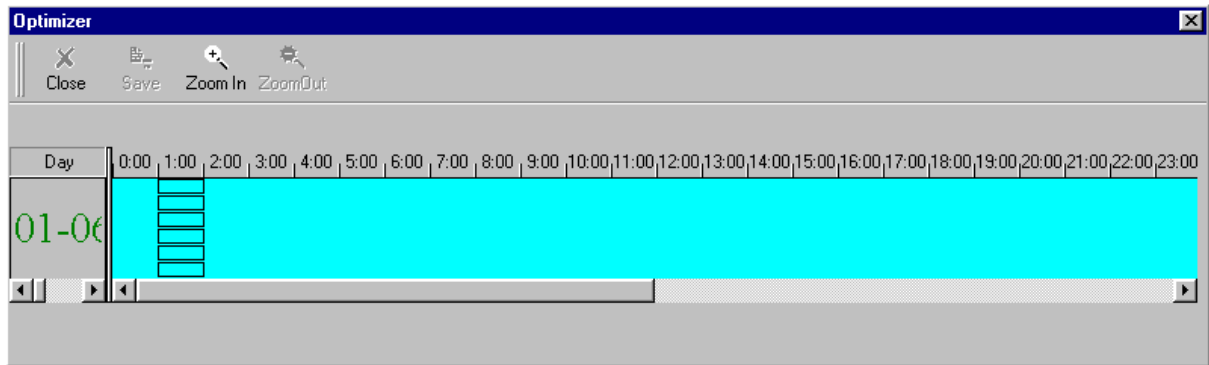
- <Left Click> on "Save".
- <Left Click> on "Close".

23.4.2 Special Days

It is possible to override the normal zone On/Off times for a particular date by setting up special days for the zone. Special days can be used for holiday periods, shutdown periods etc. and enable a different set of On/Off times to be run in the zone.

To set up a special day:

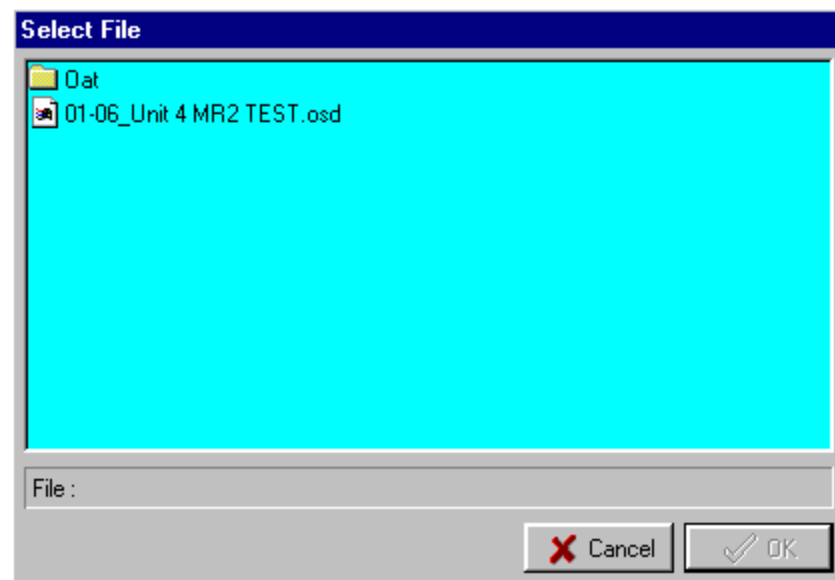
- <Left Click> on one of the days on the left hand side of the Optimised Zone Editor screen. This selects a day.
- <Right Click> on the selected day. A drop down menu will appear.
- Select "Special Day". A pop-up calendar will appear. Select the day/date required. The following "Optimiser" screen will appear:



- The bars for each On/Off period in each day can be dragged and re-sized with the mouse to set the required On/Off times.
- To enable or disable the special day <Right Click> on the special date. A drop down menu will appear. Select "Enable" or "Disable" as required.
- When the On/Off times have been set, select "Save" from the main toolbar of the Optimiser window.
- Select "Close" from the main toolbar to close the "Optimiser" screen.

To Open a Special Day:

- <Left Click> on the "Special" icon of the Optimised Zone Editor screen. This will display the following pop-up window:



- <Left Click> on the date required and select "OK".

To Delete a Special Day:

- <Right Click> on the date required.
- A drop down menu will appear. Select "Delete" from the drop down menu.

23.4.3 Optimised Start

The Optimised Start allows the zone to be set so that the zone reaches the optimum settings (e.g. room temperature) by a predetermined time. To set the Optimised Start:

- Set up the operating parameters for the zone (see 14.2 – Creating A Zone).
- Select "Options" from the Optimised Zone Editor screen. The following pop-up menu will be displayed:

The screenshot shows the 'Zone Setup' dialog box. It is divided into several sections. The 'Active Days' section has checkboxes for Sunday (unchecked), Monday (checked), Tuesday (checked), Wednesday (checked), Thursday (checked), Friday (checked), and Saturday (checked). To the right of this are checkboxes for 'Zone Active' (checked) and 'Run if missed' (unchecked). Below that is the 'Optimiser Active' checkbox (unchecked) and a 'Max. On Modifier' text box containing the value '0'. The 'Process Variable' section contains a 'Driver' dropdown menu, and three text boxes for 'Code', 'Device', and 'Network'. The 'Setpoint Variable' section also contains a 'Driver' dropdown menu and three text boxes for 'Code', 'Device', and 'Network'. At the bottom of the dialog are 'Cancel' and 'OK' buttons.

- <Left Click> on the "Optimiser Active" box. This enables the optimiser.
- In the "Max. On Modifier" enter the maximum time in minutes that the device will switch on before the set time.
- < Left Click> in the "Driver" box and select driver being used for the Process Variable and the Setpoint Variable.
- To enter the Code, Device and Network details double <Left Click> in the Code box. The LNS

Variable Selection screen will be displayed. Select the FCU and the variable required by <Left Clicking> on the variable required for the FCU selected. This will complete the table on the right hand side of the LNS Variable Selection screen. If the details are correct select "Paste".

- The details are automatically entered into the Zone Setup table. This must be completed for the Process Variable and the Setpoint Variable.
- The "Process Variable" represents the actual room temperature.
- The "Setpoint Variable" represents the desired room temperature.
- Select "OK".
- On the Optimised Zone Editor screen select "Save".

The optimiser will compare the actual room temperature (Process Variable) with the desired room temperature (Setpoint variable) and calculate when to turn the FCU on (maximum optimiser time is set by the Max. On Modifier time).

Index

- A -

About 14
accept 40
access 23, 25, 38, 40, 43
acknowledge 25, 43, 47
acknowledged 14, 43, 47
add 53
add on 192
Address 38, 44
Adjustment 14
Admin 25
AGREEMENT 9
Alarm 14, 33, 43, 44, 47, 185
Alarm Text 43
Alarms 25, 29, 33, 34, 35, 37, 43, 44, 47
allocated 25
Animation 14, 57
Animation Control 88
Animations 14
Audio 44
authorized 15
automation 208

- B -

background 51
backup 205
Bar controls 94, 103
basic 51
Basic Configuration 24
bitmap 51, 197
bitmap selector 197, 200
bitmaps 14
blank 51
Button 57
Button Control 112
Buttons 185

- C -

C++ 208
cable 20

Calendar 173
Calendars 185
Case 44
catalogue 197, 200
CD-ROM 15, 20
Cellnet 34
certificate 214
certificatied 214
certification 15, 208
changes 14
charge 208
Clear 51
Client 31
Colour 18
Combination 57
Combination control 125
Comms 29, 31, 44
Comms Options 29
communicate 53
compatible 15
configuration 28
Connect 14, 194
Connection 14, 31, 38, 194
Connections 29, 38, 40
Contact 15
context 15, 23
context sensitive help 15
contracts 15
control 14, 53, 57
control types 53
controls 25, 51
Conventions 14
copyright 9, 14
CreateAlarm 179
created 50

- D -

daily 173
Data Logging 26, 166
databases 47
Days 173
Default 23, 26, 43
delete 25
Delphi 208
Description 57
Development 208
Device 14, 15, 18, 20, 53, 208

Device calendars 173, 175
device driver 208
Device drivers 208
Dial-Up 31, 33, 38
disk 18, 20
disk space 18
disks 20
display 14, 18
distributors 15
documentation 20
dongle 20
driver 14, 15, 18, 28, 37, 53, 208
driver certification 208
Driver Destination 44
Driver Development Toolkit 208
driver development toolkits 208
Driver Setup 28
DriverFunction 179
drivers 14, 15, 28, 208
dummy 28
dynamic 50

- E -

Echelon 15
edit 50, 53
electronic certificate 214
Email 15, 44
emails 33
End 44
engineer 23
ErrorMessage 179
EULA 9
Events 26, 173
Exact 44
example 51
existing 50
ExportData 179
extra functionality 192
Extra Procedure 179

- F -

Failure 31
fax 14, 15, 18, 29, 44, 210
File 51
filter 44, 47

filtered 43
Flags 26
flash 43
floppy 20
free 15, 208

- G -

Gauge 57
Gauge control 127
GetPlot 179
GetValue 179
Global 26
Global Flags 26
graph 170
graphic 200
greeting 188
group 51
GSM 14, 29, 34, 35, 44

- H -

Hardware 18
help 15
History 43
Horizontal Bar 57
Host 31
Hot Spot 57
Hot Spot Control 122
Hotspots 185
How 50

- I -

in 44
inbound 29, 40, 194
incoming 40, 44
install 20
installation 20
installed 28
interactive intelligence 9, 14
internet 14, 18, 31, 38
IQ 15

- K -

keys 23

- L -

language 179, 188
LATENEWS 14
level 23, 25, 38, 43
Library 197
LICENSE 9
Licensors 14
list 47
LNS 15
load 51, 53
Local Calendars 26, 173
log 166
Log On 23
Log Type 170
Logging 14
LogMessage 179
logo 14
Logout 26
logs 170
loops 185

- M -

major 31
Manual 14
Match 44
menu 24
Message 37
messages 188
microphones 210
Minimize 43
Minimum 18
mode 53
modem 14, 18, 29, 31, 38, 194
modems 29, 210
modify 25
monitoring 14, 38
Mute 43
muted 43

- N -

Network 18, 31, 38, 53
Networking 31, 33, 38
new 44, 51, 53

NT 210
NT4 210
numeric 23

- O -

OCX 208
OLE 208
On/Off 57, 58
online 15
OpenSchematic 179
OpenSchematicWithDevice 179
Optimised 239
option 24
outbound 29, 38, 194

- P -

Pager 14, 29, 34, 35, 44
Paggers 35
Paging 34
panel 43, 44
panels 33, 43, 44, 47
parallel 20
password 23, 25, 38
passwords 40
PC 38
Pentium 18
Period 175
periods 175
Phone Number 38
picture 51
pictures 197, 200
Pin 23
placing 51
Play 188
Plug 192
Plug-In 239
Plug-Ins 192
Pop-up 26
pop-up schematics 26
Port 20, 38
Printer 20, 26, 44
problems 31
procedures 179, 185
profile 175
properties 51

Property 57
pumps 14

- R -

random 28
received 43
Record 166, 188
recorded 166, 188
Refresh 51
RefreshSchematic 179
Remote 14, 29, 38, 40, 44, 194
Remote Connection 194
Remove 21
Requirements 18
reserved 14
restore 206
retransmit 29, 33, 34
re-transmit 37, 44
re-transmitted 44
Retrieve 175
ReturnValue 179
rights 14
run 53

- S -

schematic 14, 26, 50, 51, 53
Schematics 14, 25, 38, 50
Script 26, 44, 57, 188, 211
Script control 147
Script Events 26
scripts 183, 185, 188
Scrolling Chart 57, 150
Search 44
Security 20, 23, 25
selector 197, 200
Send 175
SendAnalogueValue 179
SendDigitalValue 179
Sensitive 23, 44
Setup 24, 28, 29, 35
shut down 25
Shutdown 26
siren 43
Site 14, 15, 44
Site Name 26

Size 51
Software 18
Sound 18, 26, 43, 210
source 208
source code 208
space 18
speaker 26
Special 173
Special days 173
SQL 47
Start 44, 239
State Picture 57, 76
State Switch 157
State Text 57, 138
Static Picture 57, 82
Static Text 57, 85
stored 47
Support 15
switches 14
symbology 200
symbols 200
System 14
Systems 35

- T -

TAP 34
TCP 38
telephone 14, 34, 188
telephones 35
Template 170
TestDriver 28
Time Period 175
time profiles 175
time zones 175
timebase 166
timer 185, 239
Toolkit 208
toolkits 208
Trademark 14
Trademarks 14
trained 15
training 15
translation 203
Translations 203
transmitted 44
tree 51
Trend 15

types 57
Typo-graphic 14

zone 240

- U -

Unable to Make Connection 194
un-install 21
updating 38
user 25, 35, 40
User Administration 25
users 25, 35, 40
Utilities 47

- V -

values 50
Variable Text 53, 57, 67
VB Script 51, 173, 179, 185
VB Scripting 179
VBScript 211
Vertical Bar 57
viewer 200
visible 185
Visual Basic 208
Voda ZAP 34
Vodafone 34
voice 18, 29, 188, 210
Voice control system 188
voice system 188
voice/fax 210

- W -

WARRANTY 9
WAV 210
WAV file 26
web 15
web site 15
What 50
What to read 53
Windows 95 18
Windows NT 18
WriteDataToFile 179

- Z -

ZAP 34

