



Ingersoll Rand System Automation VX Accessory Box Visualization Software Manual



Before installing or starting this unit for the first time, this manual should be studied carefully to obtain a working knowledge of the unit and or the duties to be performed while operating and maintaining the unit.
RETAIN THIS MANUAL WITH UNIT. This Technical manual contains IMPORTANT SAFETY DATA and should be kept with the unit at all times.

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C.C.N. : 80445091

REV. : B

DATE : AUGUST 2011

SECTION 1 - TABLE OF CONTENTS

SECTION 1 - TABLE OF CONTENTS	3	7.2.1 COMPRESSOR STATUS.....	27
SECTION 2 - INTRODUCTION	5	7.2.2 COMPRESSOR NAMEPLATE DATA.....	28
SECTION 3 - GETTING STARTED	7	7.2.3 USER CONFIGURABLE COMPRESSOR DATA	28
3.1 COMMISSIONING PROCEDURES.....	7	7.2.4 MANUAL START/STOP CONTROL.....	28
3.2 CONNECTING TO A VX BOX VIA PC.....	7	7.3 EQUIPMENT DETAIL VIEW - I/O BOX.....	29
SECTION 4 - LOGIN	9	7.4 EQUIPMENT DETAIL VIEW - INTELLIFLOW	30
4.1 LOGIN PROCESS.....	9	SECTION 8 - CONFIGURATION OVERVIEW	33
4.2 DEFAULT ACCOUNTS.....	9	8.1 CONFIGURATION OVERVIEW	33
SECTION 5 - NAVIGATION	11	8.2 MANAGEMENT UNIT MODEL	33
5.1 TITLE BAR.....	11	8.2.1 SYSTEM CONFIGURATION	33
5.2 TAB NAVIGATION.....	11	8.2.2 USER CONFIGURABLE DATA ITEMS.....	33
SECTION 6 - SYSTEM OVERVIEW	13	8.3 COMPRESSOR SETUP.....	34
6.1 THE SYSTEM OVERVIEW SCREEN.....	13	8.3.1 COMPRESSOR CONFIGURATION	34
6.1.1 TITLE BAR.....	13	8.3.1.1 COMPRESSOR INFORMATION	34
6.1.2 TITLE BAR - THE EVENT LOG.....	13	8.3.1.2 COMPRESSOR MODEL INFORMATION.....	34
6.1.2 TITLE BAR - THE SERVICE UTILITY	14	8.3.1.3 COMPRESSOR NAMEPLATE DATA.....	34
6.2 THE DASHBOARD.....	15	8.3.1.4 MANAGED HOURS SOURCE.....	35
6.3 CONFIGURABLE I/O.....	16	8.3.1.5 ADDITIONAL DATA ITEMS.....	35
6.4 SYSTEM EFFICIENCY GAUGE	16	8.3.1.6 INTELLISYS MODBUS DATA ITEMS.....	35
6.5 X-SERIES INTERFACE	17	8.4 I/O BOX AND INTELLIFLOW SETUP	41
6.5.1 X-SERIES CONTROLS	17	8.4.1 I/O BOX CONFIGURATION.....	41
6.5.2 TABLE CONFIGURATION AND CONTROL	17	8.4.2 I/O BOX SETUP INFORMATION.....	41
6.5.3 PRESSURE SCHEDULE CONTROL	18	8.4.2.1 I/O BOX ANALOG INPUT CONFIGURATION.....	41
6.6 COMPRESSOR STATUS OVERVIEW	18	8.4.2.2 I/O BOX RELAY OUTPUT CONFIGURATION.....	41
6.7 SYSTEM DETAIL VIEW	19	8.4.2.3 I/O BOX DIGITAL INPUT CONFIGURATION.....	42
6.7.1 PERFORMANCE REPORT UTILITY.....	19	8.5 ACCOUNT MANAGEMENT.....	42
6.7.2 PRESSURE SCHEDULE.....	21	8.5.1 USER ACCOUNT CONFIGURATION	42
6.7.3 GRAPHING UTILITY.....	21	8.5.2. REMOTE MESSAGE FILTER CONFIGURATION	43
6.7.4 ARCHIVING HISTORICAL DATA.....	23	8.5.2.1 EVENT CONFIGURATION	43
6.7.5 ARCHIVING HISTORICAL DATA VIA TFTP.....	24	8.5.2.2 MODULES CONFIGURATION.....	43
6.7.6 I/O MONITORING	25	8.6 DIAGNOSTICS	44
6.7.7 DASHBOARD / TRENDING	26	8.6.1 SERIAL COMMUNICATIONS DIAGNOSTICS.....	44
SECTION 7 - EQUIPMENT OVERVIEW	27	8.6.2 SOFTWARE VERSIONS.....	45
7.1 EQUIPMENT OVERVIEW.....	27	8.6.3 VX BOX CONNECTIVITY.....	45
7.2 COMPRESSOR DETAIL VIEW.....	27	8.6.4 ETHERNET CONFIGURATION	45
		8.6.4.1 ETHERNET CONFIGURATION VIA DHCP.....	45
		8.6.4.2 ETHERNET CONFIGURATION VIA STATIC IP ADDRESS.....	45

8.7 VX OPTIONS SCREEN	46
8.7.1 VX TIME AND DATE	46
8.7.2 VX SYS OK E-MAIL NOTIFICATION	46
8.7.3 VX LANGUAGE SETUP	46
8.7.4 VX EMAIL SETUP.....	46
8.7.5 VX SMS SETUP.....	46
8.7.5.1 SMS VIA LANDLINE PHONE MODEM	47
8.8 I/O MONITORING SETUP	47
8.8.1 VX I/O MONITORING CONFIGURATION	47
8.8.2 I/O MONITORING ANALOG CONFIGURATION	47
8.8.2.1 I/O MONITORING ANALOG INPUT CONFIGURATION.....	48
8.8.3 I/O MONITORING DIGITAL CONFIGURATION	48
8.8.3.1 I/O MONITORING DIGITAL INPUT CONFIGURATION	49

SECTION 2 - INTRODUCTION

Ingersoll Rand System Visualization offers a window into a compressed air system by adding a VX Module to an X-Series Automation System control network and using only a web browser on your PC. The VX Box incorporates hardware and software to allow monitoring of the X-Series Automation system as well as all connected equipment. The software allows you to monitor your air system at a glance or take a more detailed look into system operation, equipment status and setup through an intuitive web-page based user interface. To access the application running on the VX Box, simply connect via a Web Browser from any PC using an Ethernet connection.



The VX Box connects to the X-Series Automation System via the two-wire **Air** network. The VX Box is suitable for wall mounting and can be located up to 4,000 ft. (1,219 m) from the X-Series Automation System. The VX Box connects to the customer's PC or LAN via Ethernet, using a RJ45 connector, Cat5e 10/100Base T cable.

The PC can be local "stand alone" or part of a LAN. The VX Box is fully field configurable using standard screen templates.

The visualization interface is broken down into three major segments:

System Overview

Monitor and adjust important air system data such as air system pressure and efficiency, air system set points, status of each compressor, and X8I/X12I status in an easy to read dashboard style interface. The system overview screen is also the launching point for performance reports and historical trending. See section 5 – System Overview.

Equipment Overview

Monitor more detailed compressor information such as the model and manufacturer of the compressor, capacity and power data, and configurable data points. See section 7 – Equipment Overview.

Configuration Overview

View and change air system configurations such as adding or removing a compressor, I/O box, or IntelliFlow valve.

Manage user accounts and network configuration and view diagnostic information. See Section 8 – Configuration Overview.

The system administrator can assign a user one of three levels of access (view only, user, and administrator) which will determine which functions will be available to that user. For example, only users with administrator access will be able to view or modify the configuration overview parameters. See section 8.5 – Account Management.

This manual is intended to provide users of the Ingersoll Rand Automation VX with an understanding of its intended use, operation and functions.

- GUI Overview (Graphical User Interface)
- Navigation
- Operation
- Configuration
- Administration
- Simple Troubleshooting

Troubleshooting IP address conflicts, routing, firewall or other LAN, WAN related issues:

This manual is not intended to be a resource for the configuration of IP addresses or routing of same over local area networks (LAN) or wide area networks (WAN). Although static IP or DHCP assigned IP options are discussed in this manual, no advice in relation to their use can be offered. Contact your network administrator.

Browser Products and Related Issues:

This manual is not a user guide to Internet Explorer or Mozilla Firefox. It is assumed the reader has an understanding of the respective browser software / environment. Refer to the respective browser products resources.

Visualization has been optimized for use on Internet Explorer 7+ or Mozilla Firefox 2+ browser products. While other browser products (e.g. Chrome, Opera, and Safari) may be employed successfully, these browser platforms are unsupported.

Computer Requirements

Visualization is a high performance, software GUI console. Both firmware and application layer including GUI associated with the Ingersoll Rand Automation VX are hosted on the VX Box and not on the computer. Computer requirements are therefore limited to running Internet Explorer 7+ or Mozilla Firefox 2+ with permissible access to the Ingersoll Rand Automation VX product's assigned IP address.

Visualization is designed to be viewed on a PC screen with a resolution of 1280 x 1024 pixels (SXGA). A screen with a resolution of 1280 x 800 pixels (WXGA) will give good results with vertical scrolling required for some screen pages. For screen resolutions lower than SXGA standard it will be necessary to use scroll bars to move the screen around the visible view area.

Cookies:

Although Visualization is hosted on the VX Box, and not on the PC, all user specific language and preference settings are stored on the PC as a cookie. This is common practice for web based applications and your PC will be setup to accommodate for this. All 'cookies' (preference settings files) will be stored on your PC in a special memory area dedicated for this purpose. If the 'cookies' on your PC are deleted, the Visualization will revert to default language and preference settings.

Ingersoll Rand Automation VX System Hardware:

Ingersoll Rand Automation VX is a dedicated, software GUI for use with the VX Box hardware platform incorporating an Ingersoll Rand Automation VX host interface and communication gateway. The VX provides visualization and control of networked X-Series Automation System components. It is important that the X-Series Automation System hardware platforms are installed and commissioned correctly prior to configuring your Visualization VX. Please note that this software manual assumes that the Ingersoll Rand Automation VX Box has been installed and connected to your company's network. If this is not the case please refer to the Ingersoll Rand Automation VX Box installation manual CCN 80445083.

SECTION 3 - GETTING STARTED

3.1 Commissioning Procedures

There are certain parameters that must be configured in order for the VX box to properly communicate to the LAN and to the X-Series control network. Outlined below is a list of steps that must be completed before the visualization software can be fully utilized.

Most of the setup is conducted using the configuration overview screen described in detail in section 7. Please be sure that you have ADMIN rights before attempting to configure the VX box.

1. **Install the VX box according to the Installation Manual**
2. **Connect to the VX box using a PC** – Follow the procedure outlined in section 3.2.
3. **Login to the Visualization Software** – Follow the procedures in section 4.1

If you will only be connecting to the VX box using a single PC, go to step 5. If you will be using a static IP or DHCP assigned IP address on your company's LAN please continue.

4. **Configure the VX box Ethernet settings** – Obtain a static IP address from your IT department or have an assigned domain name for DHCP access. Follow the procedures in section 8.6.4.
5. **Synchronize VX Box time to PC time** – Follow the procedures in section 8.7.4
6. **Configure the X8I/X12I information** - Follow the procedures in section 8.2
7. **Configure compressor information** – Follow the procedures in section 8.3. Make sure you have the compressor nameplate data available.
8. **Configure any I/O boxes or Intelliflow Valves** – Follow the procedures in section 8.4. Make sure you have I/O configuration information for any I/O boxes on the network. Please refer to the I/O Box operator's manual.
9. **Set up User accounts** – Follow the procedures in section 8.5 if not using default accounts.
10. **Select units on Dashboard** – Follow the procedures in section 6.2

3.2 Connecting to a VX Box via PC

In order to configure your computer to communicate point-to-point with the VX Box, you must first set the IP address range of your computer to the default IP address range of the Visualization box. To do this, please follow the instructions listed below to configure the Computer IP address. These settings are accessible using Windows XP by selecting:

Please note that the VX Box ships with a default IP address of 192.168.1.2.

Using Classic View:

Select Start

Select Settings

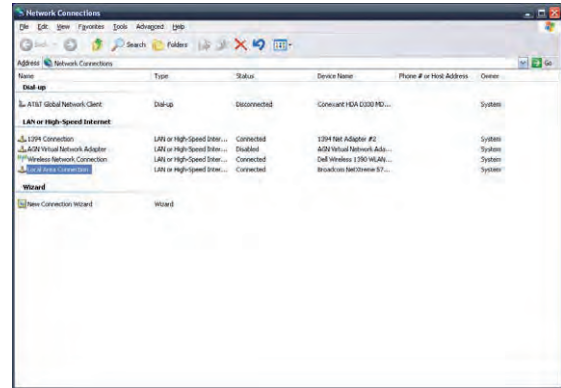
Select Network Connections

Using XP Start View:

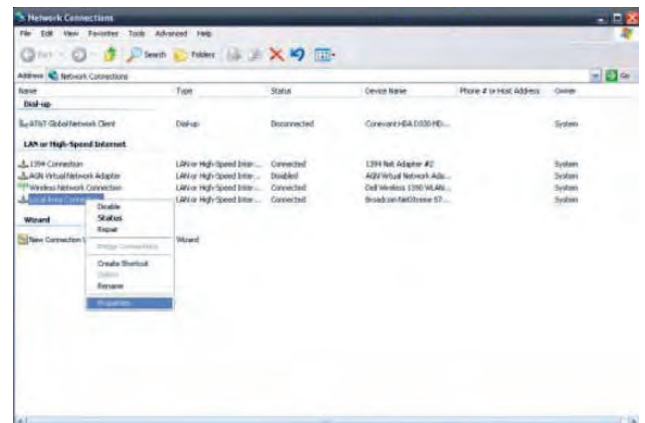
Select Start

Select Control Panel

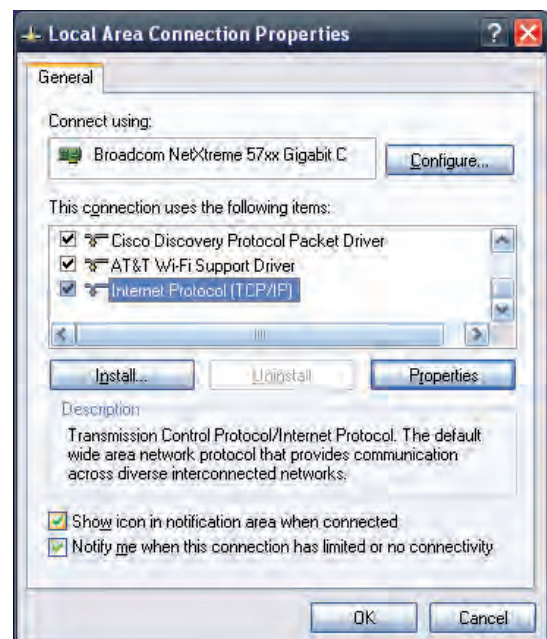
Select Network Connections



Select Local Area Connection.



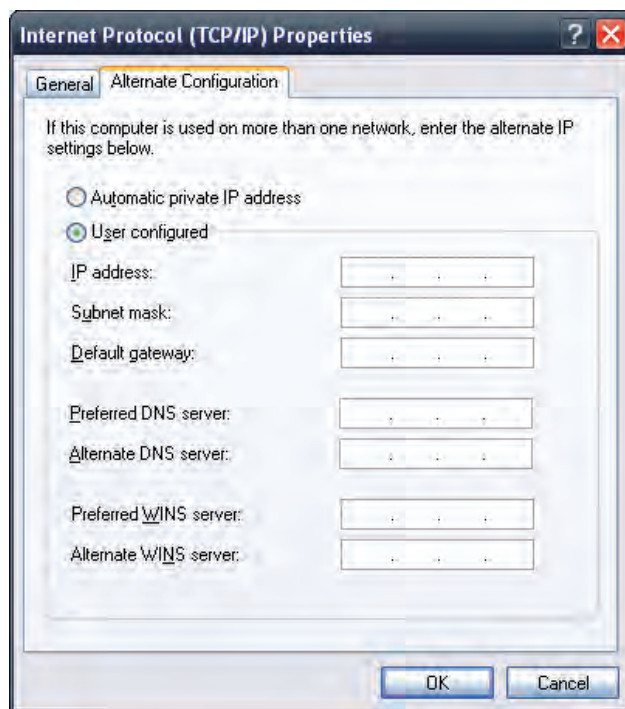
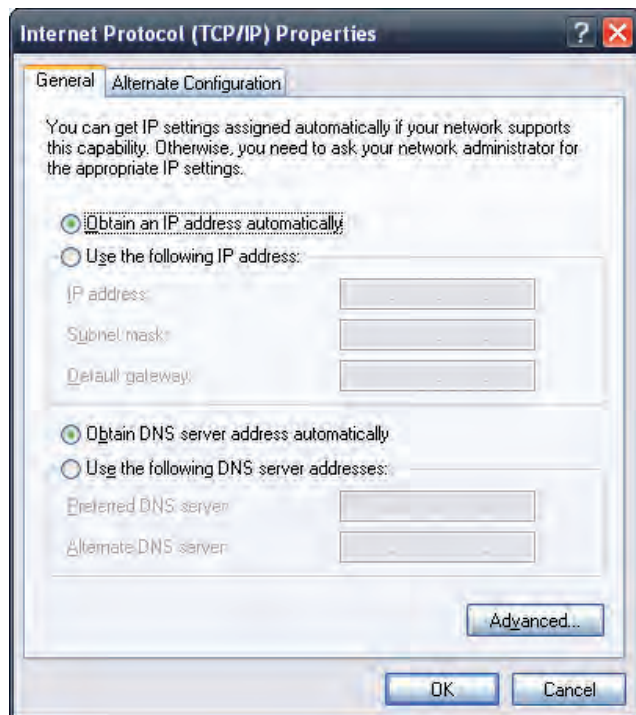
Right Click on the Local Area Connection
Select Properties



Scroll down the Connection List to find Internet Protocol (TCP/IP)

Select Internet Protocol (TCP/IP)

Click on Properties

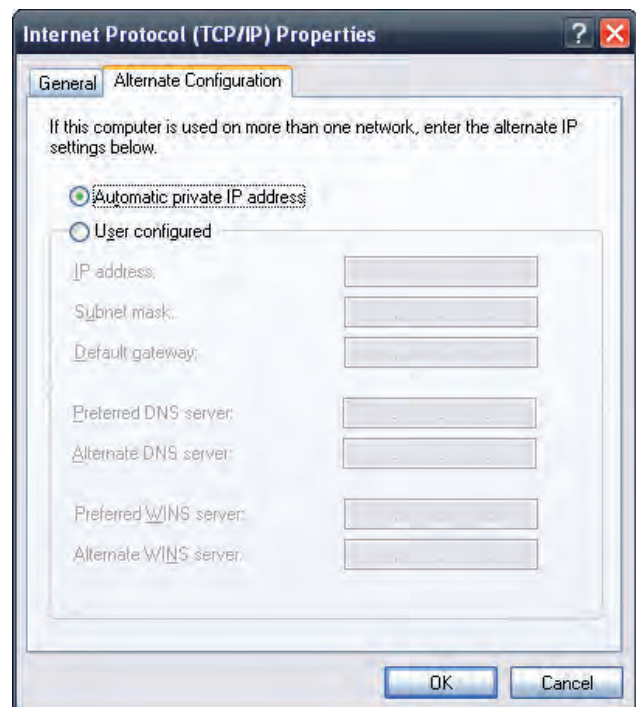


Enter IP address for the Computer 192.168.1.3

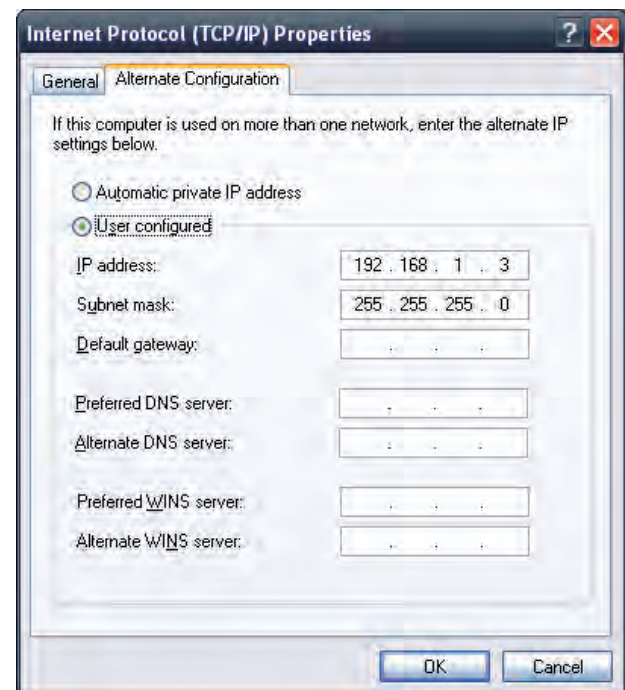
Enter the Subnet Mask for the Computer 255.255.255.0

Leave all other Fields blank.

Click on the Alternate Configuration Tab



Click on User Configured Button



When complete, Click OK

Connect an Ethernet cable to your Computer and to the Visualization Box. Within a minute, the Computer will make a connection to the Visualization Box. Once connected, you will be able to log into and configure the Visualization Box.

SECTION 4 - LOGIN

4.1 Login Process

During the installation and commissioning process a network address was assigned to the VX Box by your IT department.

This address may be a static IP
(e.g. <http://192.168.1.2>, recommended)

Or a DHCP assigned domain name address
(e.g. <http://myairsystem.com>).

A domain name address is a web page address chosen by the user to represent the VX box. The domain name must be approved by your IT department but can generally be any text label you wish. You must have this address before you can log in to the visualization software. See section 8.6.4 – Ethernet Configuration.

Please note that **Ingersoll Rand** Automation Visualization requires **Internet Explorer 7 (or newer) or Mozilla Firefox 2 (or newer)**. Certain functions may not behave correctly when using older browser software.

To log in to the visualization program you must first type the address into your browser and then press the enter button.

For example, with a DHCP enabled VX box you might type this:



While with a static IP address you might type this:



If the VX box is configured correctly you will then see the **Ingersoll Rand** Automation splash screen in your browser. This may take a few seconds depending on our network connection speed.



Name - Type in your user name (case sensitive)

Password - Type in your password (case sensitive)

Language - Select your language from the dropdown list

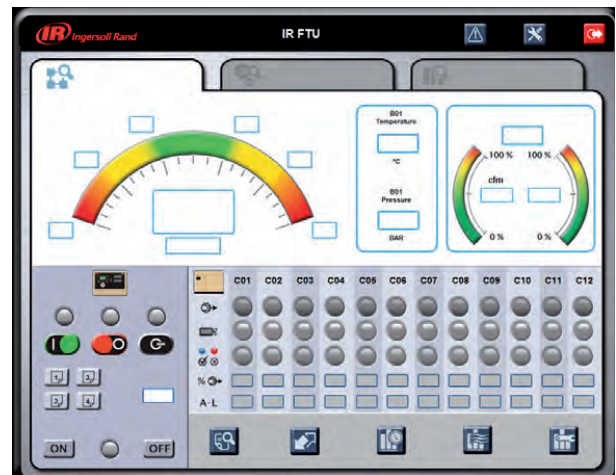
Login - Click the Login button or press Enter



If the user name or password are incorrect the background of the field will turn red.

Please see section 4.2 for default account information, and section 8.5 for more detailed information about the account management process.

Upon successfully logging in you will see the system overview screen shown below:



4.2 Default Accounts

The Visualization software comes preconfigured with three default user accounts. The system administrator can assign users one of three levels of access (view only, user, and administrator) which will determine which functions will be available. For example, only users with administrator access will be able to view or modify the configuration overview parameters. It is highly advised that the administrator change these accounts as soon as feasible to prevent unauthorized access to the Visualization software. The three level of access rights are as follows:

1. **VIEW** – The user is able to view all information on the SOV and EOV screens and their detail view screens. The user is unable to change any set points or access the Configuration Overview (COV) screens.

2. USER – The user has all rights available to the VIEW access level as well as being able to change set points on the table configuration screens, pressure schedule screens, and is able to manually start and stop compressors, as well as start and stop the X8I/X12I.
3. ADMIN – The user has all rights of the VIEW, and USER access levels as well as full access to the Configuration Overview (COV) screens, the account management utility, and the diagnostics screen.

Please note that there can be as many as **five (5) maximum** users logged into the system at one time, and only one administrator logged in at one time.

The three default accounts are:

1. Login: **view**
Password: **pwview**
Rights: VIEW
2. Login: **user**
Password: **pwuser**
Rights: USER
3. Login: **admin**
Password: **pwadmin**
Rights: ADMIN

Only a user with ADMIN rights will be able to modify these default accounts.

SECTION 5 - NAVIGATION

5.1 Title Bar

Visualization navigation uses a simple point and click interface. A title bar will be present at the top of every screen and will display information about system name, alarms, and will provide access to event and service logs.



The components of the title bar are as follows:

Installation Name – This is configured by the system administrators and is a name that is used to identify the compressed air system.



Heartbeat

The flashing heartbeat symbol, shown adjacent to the Ingersoll Rand logo, indicates good internet connectivity with the remote VX.



Online Manual Button Clicking this button will open the VX Software Manual either for viewing or for downloading.

Event Log Button

Clicking this button will bring the user to the visualization event log. See section 6.1.1 – Event Log



Service Maintenance Button – Clicking this button will bring the user to the maintenance reminder utility. See section 6.1.2 – Service Reminder utility.

General Alarm Flag – This flag will appear if there is an alarm condition present on the X8I/ X12I or any of the compressors in the system. If there is no alarm present or the alarm has been resolved this flag will disappear.



Service Reminder Flag – This flag will appear if a service reminder has been set up for a compressor and service is now due. Once the service reminder has been updated this flag will disappear.



Log Out Button – Clicking this button will log out the current user and return to the visualization login screen.

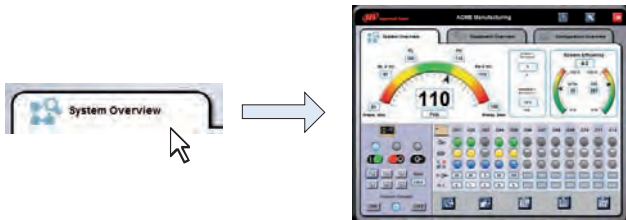
5.2 Tab Navigation

Each of the three main segments: System Overview, Equipment Overview, and Configuration Overview, is represented by a tab below the title bar.



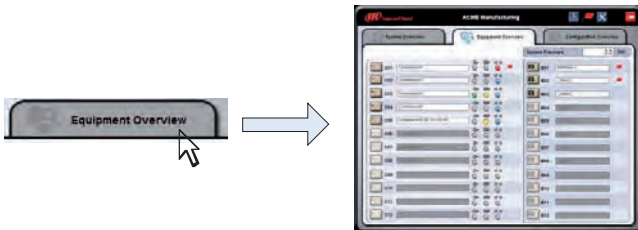
Clicking on the tab will bring you to the overview screen for that particular segment.

Clicking on the system overview tab will bring the user to the System Overview page. From here the user can monitor and adjust (with the correct security) important air system data such as air system pressure and efficiency, status of each compressor, and X8I and X12I status in an easy to read dashboard style interface. The system overview screen is also the launching point for set point and scheduling screens plus performance reports and historical graphing and trending tools. See section 6 – System Overview.



Clicking on the configuration overview tab will bring the user to the Configuration Overview page. From here the system administrator(s) can view and change air system configurations such as adding or removing a compressor, I/O box, or Intelliflow valve. Manage user accounts and network configuration and view diagnostic information. The configuration overview page is only accessible by users with ADMIN rights. See section 8 – Configuration Overview.

Clicking on the equipment overview tab will bring the user to the Equipment Overview page. From here the user can monitor more detailed compressor information such as the model and manufacturer of the compressor, capacity and power data, and configurable data points. See section 7 – Equipment Overview.

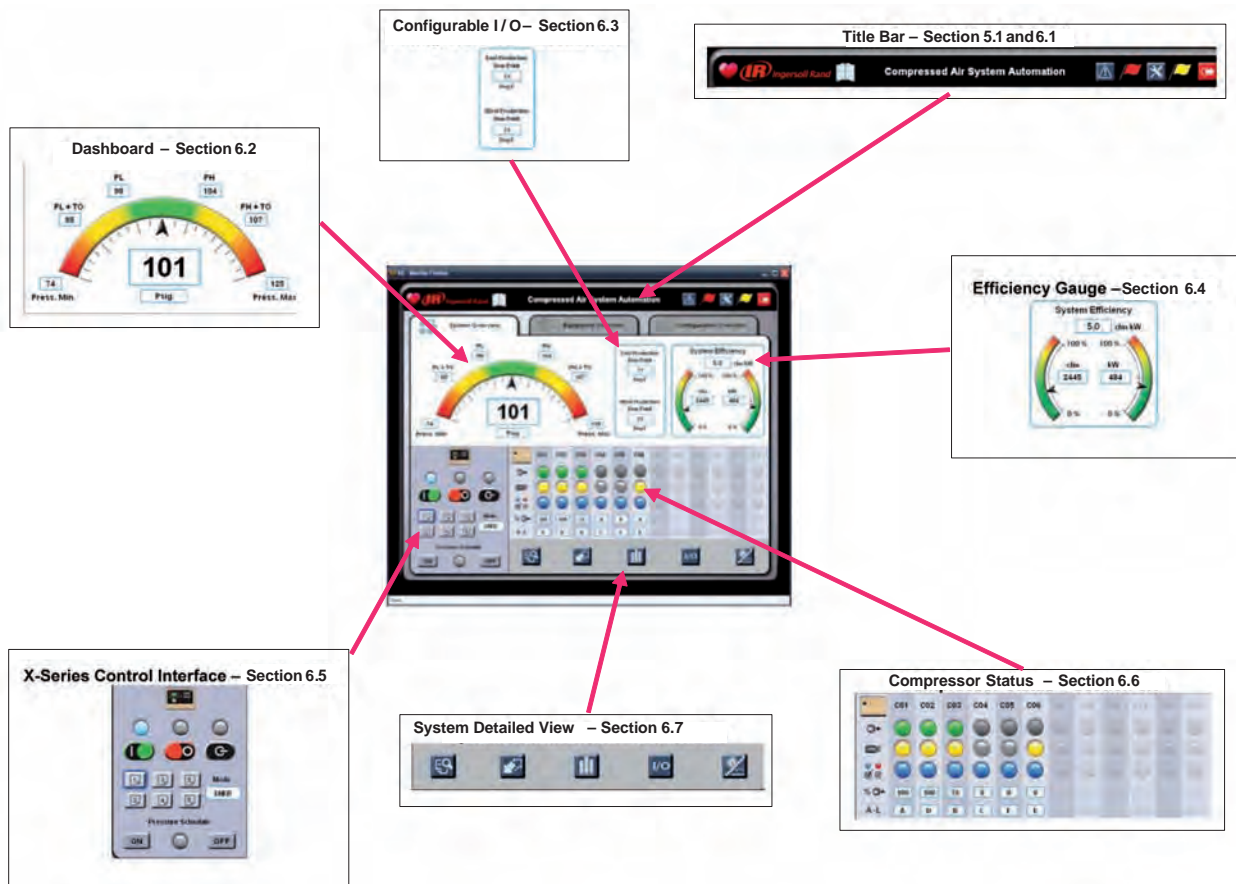


Navigation between tabs is instant; there is no need to save data before moving to another tab. From the overview tabs the user can navigate to the various associated detail view pages.

SECTION 6 - SYSTEM OVERVIEW

6.1 The System Overview Screen

The system overview screen presents an overall view of your compressed air system and is broken down into functional sections.



6.1.1 Title Bar

A title bar will be present at the top of every screen and will display information about system name, alarms, and will provide access to event and service logs.



6.1.2 Title Bar - The Event Log



The Visualization Event Log records certain events that occur in your air system or in the visualization software itself. The events recorded and placed into one of three categories:

1. **Alarms** – Alarms are events that indicate that an abnormal situation has occurred on a compressor, X8I/X12I, I/O Box, or Intelliflow valve but the piece of equipment is still functioning normally.
2. **Trips/Shutdowns** – Trips/Shutdowns are events that indicate that an abnormal situation has

occurred on a compressor, X8I/X12I, I/O Box, or Intelliflow valve and the piece of equipment has been stopped.

3. **System Information** – System information events record user logins and logouts.

The event log will record the last 500 events. Once this 500 event limit has been reached the oldest events will be cleared and the newest events will appear at the top of the event log.

The event log is accessible from all overview screens using the following procedure:



Click the event log button

The event log will then appear as shown below

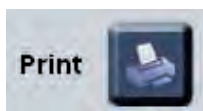


Information in the event log is presented in five columns. The columns represent, from left to right:

1. Date of the event (in DD/MM/YY format).
2. Time of the event (in a 24 hour clock format).
3. Equipment reporting the event (C01 through C12 for compressors, B01 through B12 for I/O boxes and Intelliflow valves, SYS for the X8I or X12I, and VX for the VX box itself).
4. Type of event. A(Alarm), T(Trip), or S(Shutdown).
5. Details of the event.

- ☒ **Alarms**
- ☒ **Trip/Shutdown**
- ☒ **System Information**

The event log filters allow you to control which events are displayed on the event log. A check mark appearing next to the event type means all events of that type will appear in the log. Uncheck the box to hide all events of that type.



Clicking the print button will print the event log.



When you are finished with the event log, clicking the exit button will exit back to the overview screen last viewed.

6.1.2 Title Bar - The Service Utility



The Service Utility is used to set up maintenance reminders for compressors in the system. The user enters a specified maintenance interval based on the compressor's factory recommendations and the Visualization software will provide a visual cue on the title bar as well as optional email reminders that are sent to selected users.

The service utility is accessible from all overview screens using the following procedure:



Click the service utility button

The service utility will appear as shown below:



The service utility has the following data:



C01 – C12 - Compressor Address on the X-Series Controller

Compressor Name as configured by the administrator.

Managed Hours – The number of hours that the X-Series System Controller has been monitoring the compressor.

Note: this value is initially entered into the X-Series System Controller based on the compressor's local running hour indicator. This value must be compared to the actual compressor running hours periodically to maintain consistency. This value will turn yellow when maintenance is due and the yellow flag will appear on the title bar

Service Interval

This value is entered based on the compressor's maintenance interval according to OEM recommendations. User or Administrator access is required to change this value



Pressing this button adds the service interval to the managed hours. This adds the service interval value to the service due field and removes the yellow maintenance due flag for the compressor. This should be done after maintenance is performed on the compressor. This button is only available to users with User or Administrator rights

Service Due @

When the managed hours reach the service due hours the yellow maintenance reminder flag will be activated.



The maintenance reminder flag appears when the managed hours reach the service due hours. There is a flag for each compressor and a master flag that will appear on the title bar if any compressor has a maintenance reminder flag active.

The service utility also has the capability of emailing users that service is due.

☒ **e-mail 200 hours before service due**

Checking off this option will instruct the visualization software to send out emails to any users who have been selected by the administrator when a compressor is due for service in 200 hours.

☒ **e-mail when service due**

Checking off this option will instruct the visualization software to send out emails to any users to have been selected by the administrator when a compressor is due for service.

Please see section 6.5 for information on setting up users to receive service due reminder emails.

When you are finished viewing and/or changing the settings in the service utility:



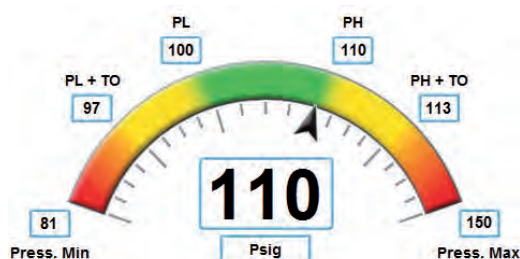
Click the exit button to leave the service utility without saving any changes. You will be returned to the last overview page viewed.



Click the Save and Exit button to save your changes and return to the last viewed overview page.

6.2 The Dashboard

The dashboard area of the System Overview page (SOV) is where system pressure information is displayed in an easy to read gauge interface. The dashboard prominently displays system pressure as well as setpoints from the X8I or X12I system controller.



The arrow on the pressure gauge represents where the system pressure is in relation to the system controller's setpoints. If the arrow is in the green zone system pressure is currently optimal and the system controller will take no action. If the arrow reaches the yellow zone the system controller will consider actions to load or unload a compressor to return system pressure to the green zone. In the red zone the system controller is taking increasingly urgent action to return the system pressure to the green zone. Please see the X-Series System Controller operator's manual for more detailed information on pressure control.

The other data points shown are (please note that the values below are examples only):

Psig

System pressure display units.

Clicking on the units will switch between BAR, PSIG, and KPa units of measure.

81
Press. Min

Minimum pressure alarm setting.

PL + TO
97

Low pressure setpoint minus the tolerance setting.

PL
100

Low pressure setpoint. This is the pressure setpoint where the X-Series System Controller will load a compressor. This is based on the active table.

PH
110

High pressure setpoint. This is the pressure setpoint where the X-Series System Controller will unload a compressor. This is based on the active table.

PH + TO
113

High pressure setpoint plus the tolerance setting.

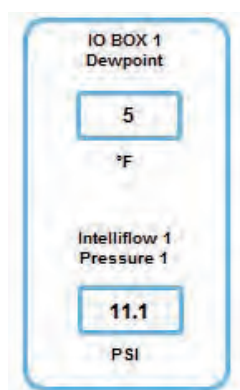
150
Press. Max

Maximum pressure alarm setting.

Please refer to the X8I or X12I operator's manual for further information on the system pressure setpoints.

6.3 Configurable I/O

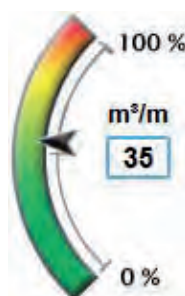
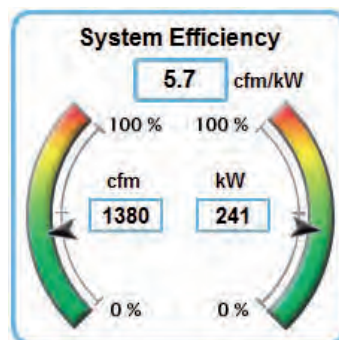
The configurable I/O section of the SOV screen allows the user to select two data points to display on the SOV. The user configurable I/O may be from the X12I, an Intelliflow valve, or an I/O box. The configurable I/O may only be configured by a user with administrator rights, see section 8.2.2 – User Configurable Data Items.



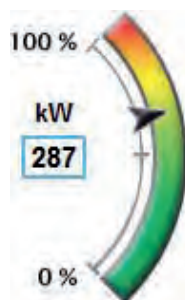
6.4 System Efficiency Gauge

The system efficiency gauge calculates and displays an overview of air system energy efficiency. This is intended to be a guide only and is based on user input, monitored status, and in some cases, measured data. The

system efficiency units are configurable by a user with administrator rights. System efficiency can be displayed in units of cfm/kW, kW/cfm, or kW/m³/min.



The system output gauge uses the name plate capacity of the compressors in the air system as well as monitoring compressor load states to determine how much compressed air is being placed into the system. The gauge shows how much capacity is being utilized in relation to the capacity of all compressors in the system. A flow meter can also be used for this value. Units and data source can only be changed by a user with administrator rights, see section 8.2 – System Setup.

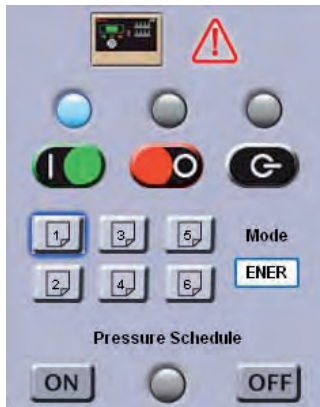


The system power consumption gauge uses the name plate power consumption of the compressors in the air system as well as monitoring compressor load states to determine the current power draw of the compressors. The gauge shows how much power is being consumed in comparison to the power consumed when all compressors are at maximum load. Units are always kW.

The system efficiency reading is only a guideline and should be used for monitoring day to day changes in compressed air system efficiency. True system efficiency can only be determined with accurate flow and power meters and detailed calculations.

6.5 X-Series Interface

The X-Series interface allows remote control of the system controller from the visualization software. The user can monitor and change the current operating state as well as change system controller setpoints.



If an X-Series System Controller system alarm occurs this caution symbol will appear next to the system controller icon on the X-SERIES interface.

6.5.1 X-Series Controls

The X-Series controls can only be used by users with USER or ADMIN rights. All other users will only be able to view the status.



Pressing the start button will start the X-Series System Controller. The blue indicator light above the button will light up to confirm that the system controller has started. The indicator will also change state if the X-Series has been started or stopped remotely.



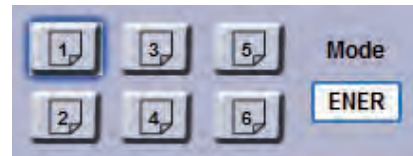
Pressing the stop button will stop the X-Series System Controller and place the compressors into local control. The blue indicator light above the button will light up to confirm that the system controller has stopped. The indicator will also change state if the X-Series has been started or stopped remotely.



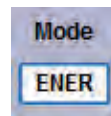
Pressing the stop button will stop the X-Series System Controller and place the compressors into local control. The blue indicator light above the button will light up to confirm that the system controller has stopped. The indicator will also change state if the X-Series has been started or stopped remotely, with ADMIN rights.

6.5.2 Table Configuration and Control

The X-Series System control interface allows the user to see which table is currently active and which sequencing algorithm the system controller is currently utilizing. The user can also edit any table setpoints. Please note that the X4I has four tables while the X12I has six tables.



The current active table will be highlighted in blue, such as table 1 in the picture above. If the active table changes; either by the pressure schedule or by a user changing the default table on the X8I/X12I the highlight will move within two seconds of the change being made. If the system controller is in a standby state no table will be highlighted.



The mode shows the sequencing algorithm that is currently being utilized by the system controller. If a change is made, this will be updated within two seconds.



Clicking on a table will bring up a table configuration screen where the user can edit the pressure setpoints in the system controller. This function is only available to users with USER or ADMIN rights.

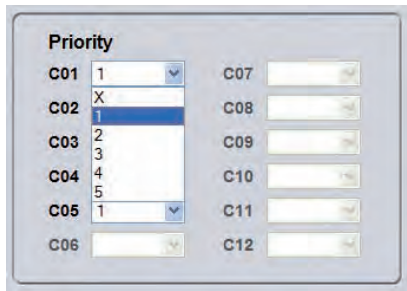


The table configuration screen allows anyone with USER or ADMIN rights to change the X-Series table setpoints. Users with VIEW rights will only be able to view the settings. The X-Series setpoints are described in detail in the X-Series System Controller operator's manual.



- PH** High Pressure Setpoint – The X-Series System Controller will unload a compressor when system pressure rises above this value.
- PL** Low Pressure Setpoint – The X-Series System Controller will load a compressor when system pressure drops below this value.
- Pm** Minimum Pressure Alarm – The X-Series System Controller will report an alarm condition if system pressure drops below this value.

SQ Sequencing Algorithm – The sequencing currently utilized by the X-Series System Controller. The Selections are ENER, FILO, and EHR.



Compressor Priority – Set each compressors priority in the X-Series System Controller sequence.
X = compressor unavailable
Priority 1 = highest priority
Please see the X-Series System Controller operator's manual for more information about compressor priority.
When you are finished viewing and/or changing the settings in the table configuration screen:

When you are finished viewing and/or changing the settings in the table configuration screen:



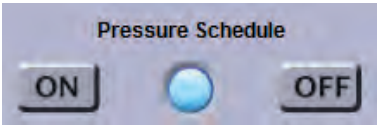
Click the exit button to leave the table configuration page without saving any changes. You will be returned to the SOV screen



Click the Save and Exit button to save your changes and return to the SOV screen.

6.5.3 Pressure Schedule Control

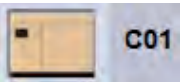
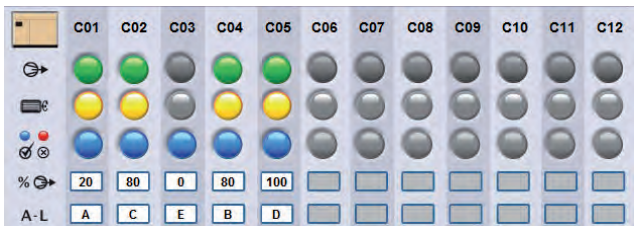
The pressure schedule control allows a user with USER or ADMIN rights to activate or deactivate the pressure schedule on the X-Series System Controller I. The X-Series System Controller pressure schedule allows the user to switch between pressure tables or standby mode based on date and time. The pressure schedule is activated by clicking the ON button. The indicator light will turn blue to confirm that the pressure schedule has been activated. The pressure schedule can be deactivated by clicking the OFF button. The indicator will then turn grey to confirm that the pressure schedule has been deactivated. The indicator will also change state if the pressure schedule has been activated or deactivated from the X-Series System Controller.



Please see section 6.7.2 – Pressure Schedule for information on setting up the pressure schedule. Also please refer to the X8I or X12I operator's manual for detailed information about the pressure schedule functionality of the X-Series System Controller.

6.6 Compressor Status Overview

The compressor status overview gives the current operating condition of all compressors that are connected to the X8I/X12I. The overview duplicates the data that is given on the X8I/X12I control panel, using the same style of lights. The compressor status overview is view only and may not be adjusted by any users.



Compressor address



Compressor Load Status – This indicator will be green when the compressor is in a loaded condition and grey when the compressor is unloaded.



Compressor Running Status – This indicator will be yellow when the compressor's motor is running and grey when the compressor's motor is not running.



System Control Indicator – This indicator will be blue when the compressor is under X-Series control and red when the compressor is under local control or placed into service maintenance mode, or otherwise unavailable to the X-Series System Controller.



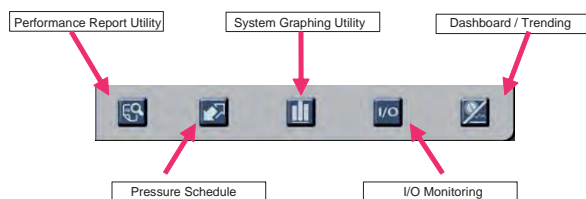
Compressor Load Percentage – This value displays the load percentage the compressor is currently reporting. This will vary for variable speed drive compressors and be either 0% or 100% for fixed speed compressors.



Compressor Sequence Position – This letter will display which place in the sequence the compressor is assigned. This letter can range from A to K for a 12 compressor system, with A being the 1st compressor in the sequence and K being the 12th. An @ symbol in this field will indicate that the compressor has been restricted from use in the priority settings.

6.7 System Detail View

The system detail view buttons provide access to the visualization software's reporting and graphing utilities. The system detail view buttons also provide access to the X-Series pressure schedule.



6.7.1 Performance Report Utility

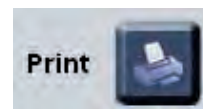
The performance report provides a summary of the compressed air system's performance for the past hour, day, week, or 4 week period. The performance report provides information on the average and maximum output capacity, power consumption, and utilization of the entire air system. Information on the utilization of each individual compressor is also displayed. The time period of the performance report is selected based on the current graph being viewed. For example, if you are currently viewing the 1 week graph, clicking the performance report utility will produce a performance report for that 1 week period of time.



Click the Performance Report Utility button to open the performance report. From the system overview page the performance report will be based on the last complete seven days of operation (one calendar week; 168hrs).



Clicking the graph button will open the graph utility.



Clicking on the print button will print the performance report currently being viewed.



Click the exit button to leave the Performance Report Utility. You will be returned to the system overview page.

INGERSOLL RAND AUTOMATION			
10/15/2010 11:00:00 - 10/15/2010 11:27:54			
SPECIFIC	MIN	AVERAGE	MAX
INPUT	904.0 KW	982.7 KW	1186.0 KW
OUTPUT	3603 cfm	4979 cfm	6522 cfm
SYSTEM	MIN	AVERAGE	MAX
PRESSURE	98 Psig	100 Psig	103 Psig
UTILIZATION	53.6 %	74.1 %	97.0 %
COMPRESSOR	RUNNING	LOADED	UNLOADED
01 #1 Brand XYZ	22.8 %	27.0 %	73.0 %
02 #2 Brand XYZ	46.5 %	95.7 %	4.3 %
03 #3 IRN 150H-2s VSD	46.5 %	100.0 %	0.0 %
04 #4 IRN 300H-2s VSD	46.5 %	100.0 %	0.0 %
05 #5 EPE 300-2s FS	46.5 %	100.0 %	0.0 %
06 #6 EPE 200-2s FS	46.5 %	100.0 %	0.0 %
PERFORMANCE	TOTAL		
INPUT	456.9 kWh		
OUTPUT	138904 f ³		
OPERATIONAL TIME	0.5 hrs		
PRODUCTIVE INPUT	90.1 %		
NON-PRODUCTIVE INPUT	9.9 %		
EFFICIENCY	5.1 cfm/kW		

Performance Report Indicators

Item	Description
Compressed Air System Automation	System name
Date	Report range

Specific power & flow data:

Input (min, average, max)	System kW
Output (min, average, max)	m ³ /min, cfm

System data:

Pressure (min, average, max)	Bar, psi, KPa
Utilization (min, average, max)	Percentage of max

Compressor:

Compressor 1 - 12	Name
Running	Percentage running
Loaded	Percentage loaded
Unloaded	Percentage unloaded

Performance:

Input	Total kWh
Output	Total m ³ , f ³
Operational time	Operational time within report range
Productive input	Percentage, productive running
Non-productive input	Percentage, non-productive running
Efficiency	kW/m ³ /min, kW/cfm

6.7.2 Pressure Schedule

The X-Series pressure schedule can be modified from the visualization software by users with USER or ADMIN rights. The pressure schedule lets you schedule when the 3 (X4I, 4 (X8I), or 6 (X12I) pressure tables are utilized. Users with VIEW rights can only view the current pressure schedule. Please see the X-Series System Controller operator's manual for more detailed information about the pressure schedule function.



Click the pressure schedule button to open the pressure schedule configuration screen.



Configuring the pressure schedule in the visualization software is identical to configuring the pressure schedule from the X-Series control panel.

Day	1 = Mon 2 = Tue 3 = Wed 4 = Thu 5 = Fri 6 = Sat 7 = Sun 8 = Each working day of the week, excluding Saturday and Sunday 9 = Each day of the week. - (dash) = deactivate
Hours	00 - 23
Mins	00 - 59
Table	X = System off T01 – T0x (x is based on the X-Series System controller being used)

Please note that the pressure schedule configuration screen rearranges entries automatically based on day/time entered.

When you are finished viewing and/or changing the settings in the pressure schedule configuration screen:



Click the exit button to leave the pressure schedule configuration page without saving any changes. You will be returned to the SOV screen.



Click the Save and Exit button to save your changes and return to the SOV screen.

6.7.3 Graphing Utility

The graphing utility allows the user to plot certain data points, such as system pressure, output flow, or compressor load percentages for hour, day, week, or 4 week periods. There are three graphing utility buttons on the system overview screen.



Configurable Graph - Click on the configurable graph button to select a variable to graph.



Once the graphing utility has been opened the navigation buttons can be used to see data from different time periods. The VX box will store the last 30 days of data.

Vertical axis Unit, scaled relative to graph loaded

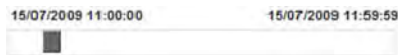
Horizontal axis Time, scaled relative to resolution. Graph start and end date and time are also shown



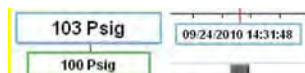
Move chronologically forward or back at the respective resolution (hour, day or week). Clicking the left arrow will show the previous data. Clicking the right arrow will show the next data (if applicable).



Clicking the double right arrow button will bring you to the latest collected data of the current time period. For example if you are currently viewing 1 day's time period you will go to the current day's data.

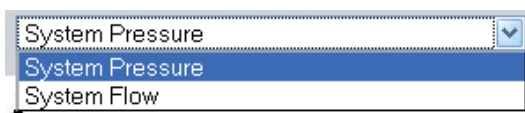


The graph can also be navigated by using the grey slider below the time axis. Sliding the cursor all the way to the left will navigate to previous data using the same time scale currently selected. Sliding the cursor all the way to the right will navigate to the next data using the same time scale.



Dragging the slider to a point on the graph will display the value, the units, and the Date and time of the current selected variable.

Available Graphs:



The drop down menu allows you to choose a variable to view on the graph. Available variables include system pressure, system flow, compressor load percentages, compressor load status, compressor run status, user configurable data points, dewpoint (if installed), power, and efficiency.

Compressor Status Graph:



The status of each compressor is displayed as a horizontal bar graph. Historical status is indicated by color.

Grey:	Standby, Not Running, Available
Yellow:	Running
Green:	Loaded
Amber:	Alarm (Warning)
Red:	Trip / Shutdown / Not Available

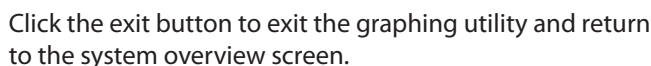
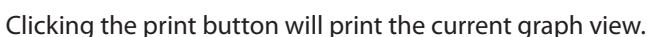
Digital Status Graphs:



A similar principle to the compressor status graph is used for digital I/O status graphs. In the instance of a digital I/O the user defined color of the digital I/O indication, as used on the I/O screens, is utilized to indicate the digital ON state.

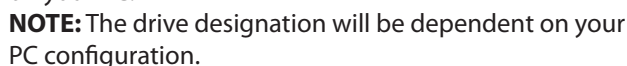


Click the Performance Report Utility button to open the performance report for the currently displayed time period.

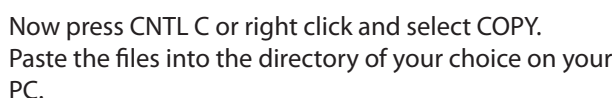
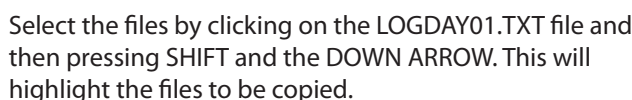
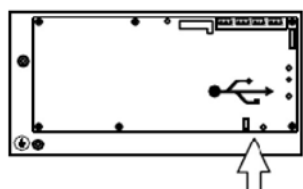


The VX Box stores up to 30 days of data for all data points that can be graphed using the graphing utility. In order to retrieve this data first follow the USB connection procedure on page 4 of the VX Accessory Box Installation Manual (CCN: 80445083). Once connected, follow the procedure outlined below.

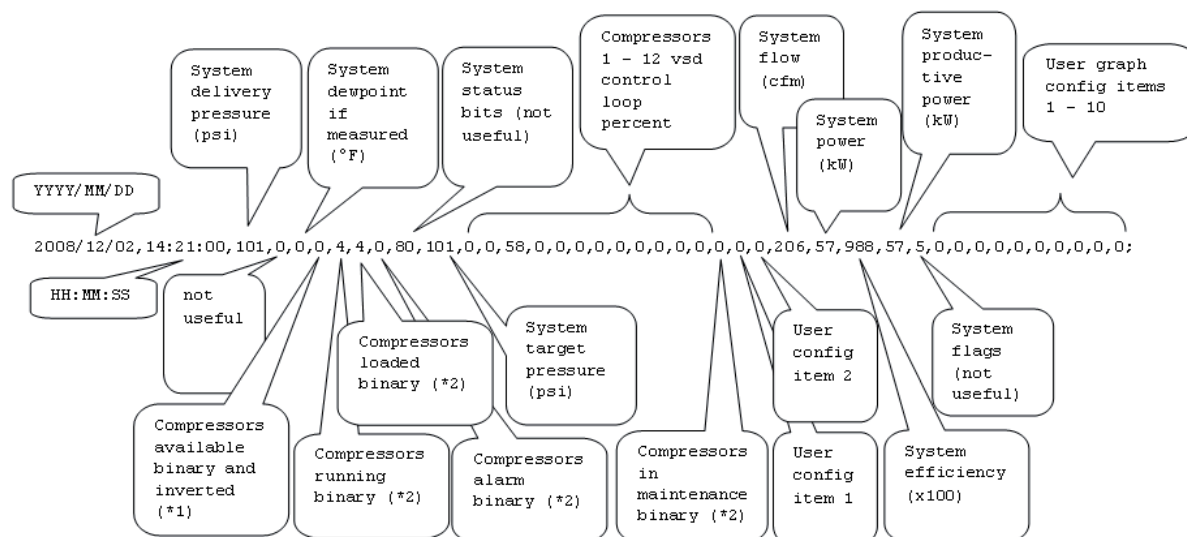
To initiate the file transfer, connect your PC to VX Box using a standard USB 2.0 Universal Serial Bus Cable A to B



Scroll down the list of file names until you see the LOGDAY01.TXT



To use the data for reports, you can use EXCEL or any other Database program to import and extract the data as desired. All data is saved in comma separated variable (CSV) format which can easily be imported into Excel using the import wizard.



For example, 4 would be 100 in binary, where compressors 1 and 2 are available and compressor 3 is unavailable.

It is recommended that the log files are archived periodically, at least once every 30 days in order to maintain a proper historical archive.

6.7.5 Archiving Historical Data via tftp

```
SET host=81.246.5.147
tftp %host% get LOGDAILY.TXT
tftp %host% get LOGDAY01.TXT
```

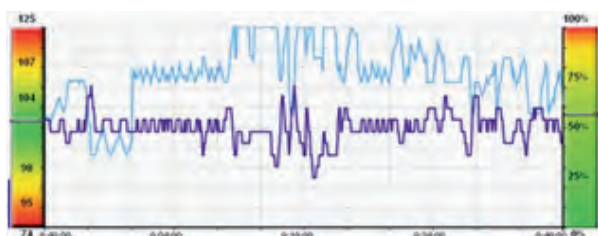
```
tftp %host% get LOGDAY02.TXT
tftp %host% get LOGDAY03.TXT
tftp %host% get LOGDAY04.TXT
tftp %host% get LOGDAY05.TXT
tftp %host% get LOGDAY06.TXT
tftp %host% get LOGDAY07.TXT
tftp %host% get LOGDAY08.TXT
tftp %host% get LOGDAY09.TXT
tftp %host% get LOGDAY10.TXT
tftp %host% get LOGDAY11.TXT
tftp %host% get LOGDAY12.TXT
tftp %host% get LOGDAY13.TXT
tftp %host% get LOGDAY14.TXT
tftp %host% get LOGDAY15.TXT
tftp %host% get LOGDAY16.TXT
tftp %host% get LOGDAY17.TXT
tftp %host% get LOGDAY18.TXT
tftp %host% get LOGDAY19.TXT
tftp %host% get LOGDAY20.TXT
tftp %host% get LOGDAY21.TXT
tftp %host% get LOGDAY22.TXT
tftp %host% get LOGDAY23.TXT
tftp %host% get LOGDAY24.TXT
tftp %host% get LOGDAY25.TXT
tftp %host% get LOGDAY26.TXT
tftp %host% get LOGDAY27.TXT
```


6.7.7 Dashboard / Trending

The VX has 2 different viewing formats for the System Overview Screen. By default, it is the Dashboard view. By pressing the Dashboard / Trending button, the format is changed to a Trending view. Real Time System Pressure and System Flow are trended over a rolling 1 hour graph. Note: The X-Series Interface and the Compressor Status Overview remain the same between the 2 different styles. Pressing the Dashboard / Trending button again returns to the Dashboard view.



Click the Dashboard / Trending button to change the System Overview Screen format.



Trend moves from right to left. Times scale is 5 minutes per division, time stamped in 15 minutes increments. System Pressure is displayed via the Dark Blue trend. System Flow is displayed via the Light Blue trend.

102
Psig

The Dark Blue box displays the current System Pressure. The unit displayed can be changed by placing the cursor on the unit and clicking. Unit value displayed can be Psig, BAR, and kPa.

3735
cfm

The Light Blue box displays the current System Flow. The unit displayed can be changed by placing the cursor on the unit and clicking. Unit value displayed can be cfm or m3/min.



The Bar on the Left of the Trend displays the X-Series Tables values and the current System Pressure. From top to bottom, the Bar values displayed are: PM, PH+TO, PH, PL, PL+TO, Pm (See Section 5.3 for details). The line across the Bar displays the current System Pressure. It will move up and down the Bar as the pressure varies.



The Bar on the Right of the Trend displays the current System Flow. The Bar displays a percentage of the Total System Flow. The line across the Bar displays the current System Flow percentage. It will move up and down the Bar as the flow varies.

SECTION 7 - EQUIPMENT OVERVIEW

7.1 Equipment Overview

The Equipment Overview screen (EOV) gives a summary of the operating conditions of all compressors, I/O boxes, and Intelliflow Valves in the compressed air system. Compressors are shown along the left side of the screen with their user assigned name, load state, running state, system control state, and an alarm flag if the compressor is currently in an alarm or trip condition. I/O boxes and Intelliflow valves are shown on the right side of the screen with their user assigned name and an alarm flag if the unit is in an alarm or trip condition. The EOV screen contains only view only data.



The system pressure is displayed in the upper right corner using the same units selected on the SOV screen.

Compressor Information is displayed as shown below. The compressor name is assigned by an administrator following section 8.3.1 – compressor configuration:



I/O Box and Intelliflow Information is displayed as shown below. The equipment name is assigned by an administrator following section 8.4.1 I/O Box configuration:



7.2 Compressor Detail View

The Compressor Detail View (CDV) screen shows relevant data about the selected compressor. The CDV contains view only data with the exception of the manual controls. Manual controls are only usable by users with USER or ADMIN rights.



Clicking the compressor icon next to the compressor address on the Equipment Overview Screen will open that compressor's CDV screen.

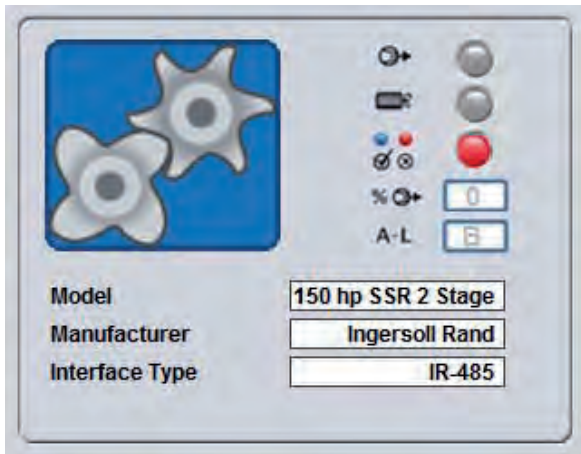


The compressor name and address are shown at the top of the CDV screen.

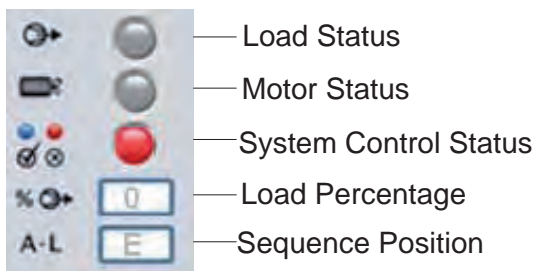


7.2.1 Compressor Status

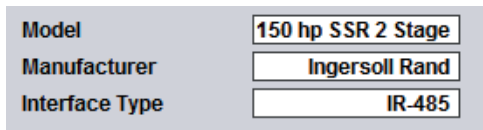
The compressor status box duplicates the status indicator lights shown on the SOV and EOVS screens as well as providing more detailed information about the compressor. The graphic represents the compression method of the compressor, a picture of a pair of rotors for example, for a rotary screw compressor, or a piston for a reciprocating compressor.



The compressor status indicator shows the current state of the compressor as shown below, this is equivalent to the indicators on the SOV:

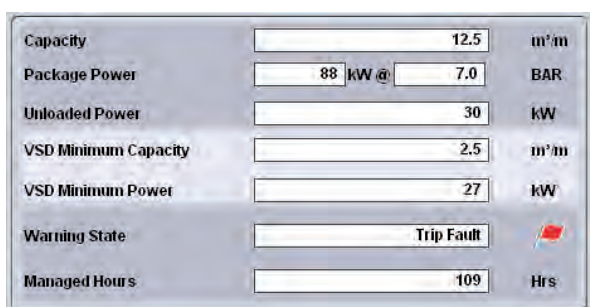


The model, manufacturer, and X8I/X12I interface type are displayed as entered by the administrator during system setup. Please see section 8.3 – Compressor Configuration for further information on compressor setup.



7.2.2 Compressor Nameplate Data

The nameplate data section shows the power consumption and output characteristics of the compressor. This data is usually taken from the compressor specifications and motor nameplate data. This data must be input by an administrator and is used in calculating the system efficiency as displayed on the System Overview screen. Care must be taken to enter the correct information for accurate performance data.



Capacity is the volume of air flow from the compressor at its rated pressure. Capacity will be in the units selected by the administrator.

Package Power is the power consumption of the compressor at full load at its rated pressure. Pressure units will again be selected by the administrator. Power units are always in kW.

Unloaded Power is the power consumption of the compressor running in an unloaded state. Units are always kW.

VSD Minimum Capacity is the volume of air flow from a variable speed compressor when it is running at its minimum load percentage. This value will always be 0 for a fixed speed machine. Units will be selected by the administrator.

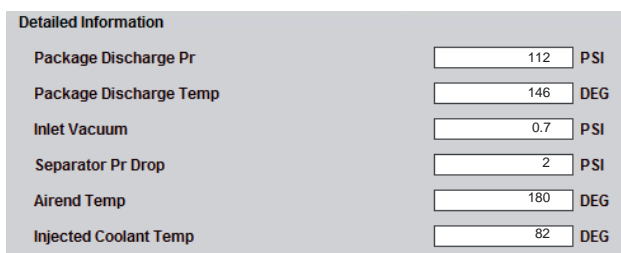
VSD Minimum Power is the power consumption of a variable speed compressor when it is running at its minimum speed. The units are always kW.

Warning State will show a text description of the current alarm or trip affecting the compressor. This value will be blank and the red alarm flag will disappear if there is no alarm. Please note that text descriptions are only available for IntelliSys controlled compressors with IR-485 or IRV-485 interface types.

Managed Hours show how many hours the compressor has been running while under control of the X8I/X12I.

7.2.3 User Configurable Compressor Data

Administrators can set up to six additional data points to be read from each compressor. These data points will be displayed on the CDV screen with administrator defined titles and units. Data points may come from the compressor or any I/O box connected to the system. Please see section 7.3.1.3 – Additional Date Items for information on setting up these data points. These additional data points are only available for IntelliSys controlled compressors with IR-485 or IRV-485 interface types.



7.2.4 Manual Start/Stop Control

The Manual Start/Stop control allows a user with User or Administrator rights to take the compressor out of X-Series control to start and stop the compressor remotely using the interface on the CDV screen. The Manual Control interface will only appear for IntelliSys controlled compressors with IR-485 or IRV-485 interface types. The compressor's local controller must also be set to accept remote start/stop commands before Manual Control will function.



Manual Control is currently off when the button reads "On" and the indicator light is grey.



Clicking the "On" button will place the compressor into service maintenance mode and remove the compressor from X-Series control. The indicator light will turn blue to confirm that the compressor is in service maintenance mode.



Clicking the "Off" button will place the compressor back under X-Series control and return the Manual Control button to "On."



If Manual Control is on the compressor can be started by pressing the green start button. The indicator light above the start button will turn blue to confirm the compressor has started. If Manual Control is off the compressor will not respond to the manual start command but the indicator lights will report the operating state of the compressor.



When Manual Control is on the compressor can also be stopped by pressing the red stop button. The indicator light above the stop button will turn blue to confirm that the compressor has stopped. If Manual Control is off the compressor will not respond to the manual stop command but the indicator light will report the operating state of the compressor.



Click the exit button to exit the CDV screen and return to the EOVS screen.

7.3 Equipment Detail View - I/O Box

The I/O Box Equipment Detail View (EDV) screen shows all data from the I/O box's analog and digital inputs and outputs. Please refer to the I/O box manual for detailed information about the I/O box's functionality.

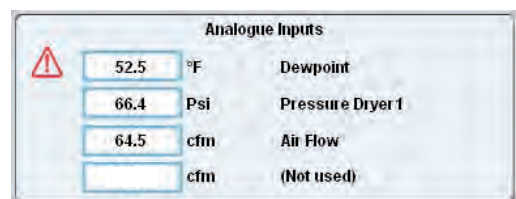
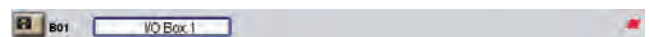


Clicking the I/O Box icon next to the desired I/O Box on the EOVS screen will open the EDV screen.



The system pressure is displayed in the upper right corner using the units selected on the SOV screen.

The I/O box's name is displayed next to its network address across the top of the EDV screen. An alarm state will cause the red alarm flag to be displayed on the upper left part of the EDV screen.



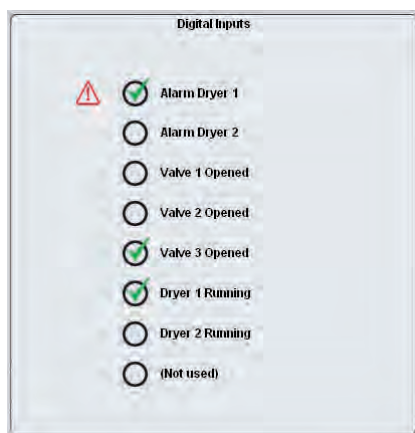
Analog input information is displayed as configured by the Administrator when setting up the I/O Box configuration. Please see section 8.4.1 – I/O Box Configuration for information about I/O Box Configuration. Labels and values shown here are only Samples.



The alarm symbol will appear next to any analog input value which is currently in an alarm condition. These alarm limits are programmable at the I/O Box.



The output states of the I/O box's six relay outputs are shown on the EDV screen. A blue indicator means the relay is in its energized state while a gray indicator means that the relay is in its de-energized state.



The input states of the I/O box's eight digital inputs are shown. A check mark indicates that the input is in its energized state while an empty circle indicates that the input is in its de-energized state.



The alarm symbol will appear next to any digital input value which is currently in an alarm condition. Alarm conditions are configured at the I/O box.

When you are finished viewing the settings in the I/O Box EDV screen:



Click the exit button to exit the EDV screen and return to the EOV screen.

7.4 Equipment Detail View - Intelliflow

The Equipment Detail View (EDV) screen shows the current operating condition of any connected Intelliflow valves. Please refer to the Intelliflow operator's manual for more detailed information about the data.

Note : Visualization is only compatible with Intelliflow valves equipped with the IX controller.



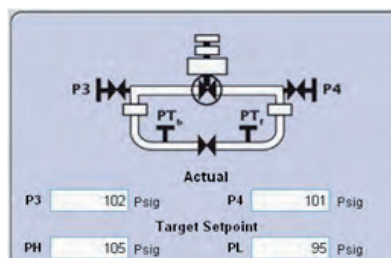
Clicking the Intelliflow icon next to the desired Intelliflow valve on the EOV screen will open the EDV screen.



The system pressure is displayed in the upper right corner using the units selected on the SOV screen.



The Intelliflow box's name is displayed next to its network address across the top of the EDV screen. An alarm state will cause the red alarm flag to be displayed on the upper left part of the EDV screen.

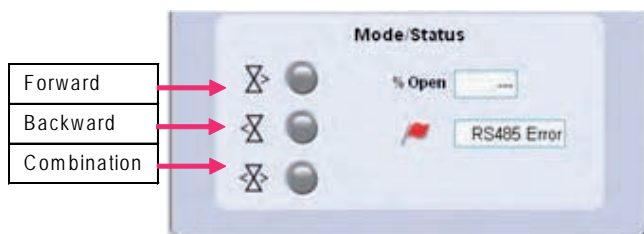


P3 Inlet Pressure is the pressure read on the supply (compressor) side of the IntelliFlow Valve.

P4 Outlet Pressure is the pressure read on the demand (process) side of the IntelliFlow Valve.

PH is the 'Backward' and 'Combination' mode Target Pressure setpoint.

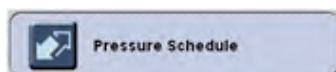
PL is the 'Forward' and 'Combination' mode Target Pressure setpoint.



Mode Status – The selected control method is also shown, forward control, backward control, or both, indicated by the indicator light turning blue beside the current method.

% Open is the IntelliFlow Valve current position.

Status – Any current alarms will cause a red flag to appear. A text readout of the alarm will appear next to the alarm flag.



The IntelliFlow pressure schedule can be modified from the visualization software by users with USER or ADMIN rights. The pressure schedule lets you schedule 5 different times to change the IntelliFlow pressure setpoints or mode of operation. Users with VIEW rights can only view the current pressure schedule.



Click the pressure schedule button to open the pressure schedule configuration screen.



Day – Hrs – Mins - Configuring the pressure schedule in the visualization software is identical to configuring the pressure schedule from the X-Series control panel. Days are entered as numbers, where 1 is Monday and 7 is Sunday. 8 means the event occurs every day and 9 means the event occurs every day except for weekends. Hours are entered in a 24 hour format. Please note that the pressure schedule configuration screen rearranges entries automatically based on the time entered.

Mode - allows you to select the 4 IntelliFlow setpoints, H01 to H04, and the mode of operation; MΣ- is for Manual, -Σ- is for fully open, and XΣX is for fully closed.

When you are finished viewing and/or changing the settings in the pressure schedule configuration screen:



Click the exit button to leave the pressure schedule configuration page without saving any changes. You will be returned to the EDV screen.



Click the Save and Exit button to save your changes and return to the EDV screen.



The target pressure selection for the IntelliFlow valve is shown. A check mark indicates that the selection is true while an empty circle indicates that the input is false. The IX IntelliFlow has 4 programmable and selectable pressure sets. Selecting H01 to H04 allows you to program each of the 4 sets of IntelliFlow setpoints.



Click the target pressure setup button to open the IntelliFlow pressure setup configuration screen.



H01 H - Enter a value for H01 H. This is the 'Backward' and 'Combination' mode Target Pressure setpoint.

H01 L - Enter a value for H01 L. This is the 'Forward' and 'Combination' mode Target Pressure setpoint.

Note: Example above is for H01. The same method is used to enter values for H02 – H04.

When you are finished viewing and/or changing the settings in the pressure schedule configuration screen:



Click the exit button to leave the pressure setup configuration page without saving any changes. You will be returned to the EDV screen.



Click the Save and Exit button to save your changes and return to the EDV screen.

When you are finished viewing and/or changing the settings in the IntelliFlow EDV screen:



Click the exit button to exit the EDV screen and return to the EOVS screen.

SECTION 8 - CONFIGURATION OVERVIEW

8.1 Configuration Overview

The Configuration Overview (COV) screen is only accessible by users with Administrator rights. The COV gives administrators access to change the configuration of system parameters as well as access to account management and diagnostic utilities.



8.2 Management Unit Model

The Management Unit Model Setup allows the administrator to change the type of system controller, flow and efficiency units, and set up the user configurable data points that are displayed on the SOV screen.

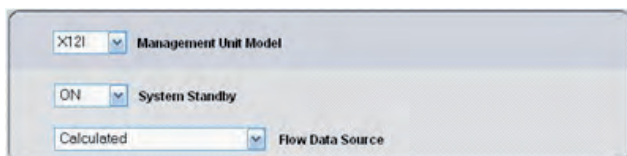


Click on the icon representing the Management Unit Model setup to open the System Setup configuration screen.

8.2.1 System Configuration

ACME Manufacturing Installation Name

Installation Name – Name of the air system, this will be shown on the title bar on all screens.



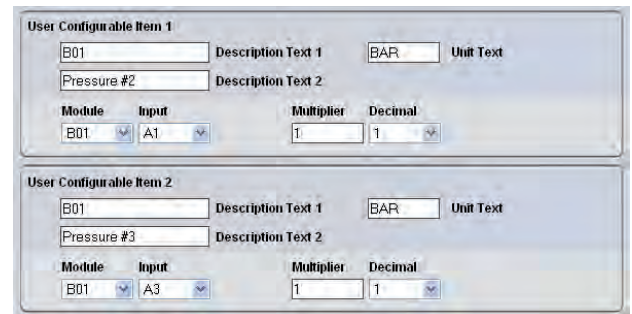
Management Unit Model – Selects whether the visualization system is connected to an X4I, X8I, X12I, or no X-Series system controller.

System Standby – Selects whether the System Standby function on the SOV screen is active.

Flow Data Source – The system flow reading may be taken from calculated values using the name plate data entered for the individual compressors or using a flow meter assigned to either of the user configurable data items.

8.2.2 User Configurable Data Items

The administrator can select any two analog inputs in the system to be displayed on the SOV screen and to be archived for graphing purposes. These analog inputs may be taken from I/O boxes or the system controller.



Description Text – Up to two lines of text can be used per user configurable data item for ease of identifying the data.

Unit Text – Use the drop down box to display a preconfigured list of Units or type in the units of the analog input used.

Module – Select the module where the desired analog input resides. Remember that B01 through B12 could be either I/O boxes or IntelliFlow Valves. SYS represents the X8I or X12I.

Input – Select the desired analog input of the X12I, I/O box, or IntelliFlow.

Multiplier – Some analog inputs may need to be multiplied by a value to obtain the correct display value. For example, if the reading is 100.3 but the analog input is transmitted as 1003, the multiplier would be 0.1.

Decimal – Select the desired number of decimal places you wish to display. For example 100.33 would be displayed as 100 with 0 decimal selected, 100.3 with 1 decimal selected, 100.33 with 2 decimal selected, and 100.330 with 3 decimal selected.

When you are finished viewing and/or changing the settings in the System Configuration screen:



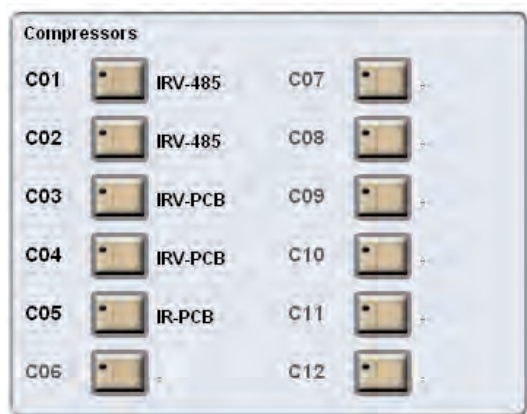
Click the exit button to leave the configuration screen without saving any changes. You will be returned to the COV.



Click the Save and Exit button to save your changes and return to the COV.

8.3 Compressor Setup

The compressor setup area shows the compressor addresses and the interface type for all compressors.



C01 through C12 – Represents the compressor address of all possible compressors in the system.

Interface Type – Represents the connection method of the compressor to the X8I/X12I. This value will be blank if the compressor is not installed in the system.

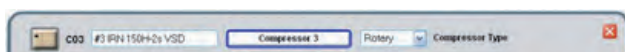
8.3.1 Compressor Configuration



Click on the compressor icon next to the desired compressor to open that compressor's configuration screen.



8.3.1.1 Compressor Information



Compressor Name - Type in the name of the compressor that will appear on the EOVS screen and the EDV screen for

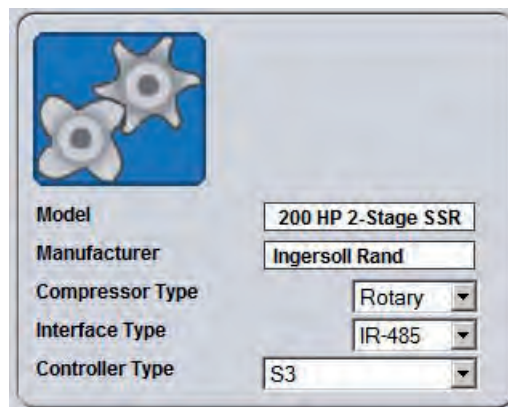
that compressor.



Compressor Type - Select the compressor's compression method from the dropdown menu. The picture representing the compressor will change according to the selected compressor type.

Selecting "----" indicates that no compressor is connected at this position.

8.3.1.2 Compressor Model Information



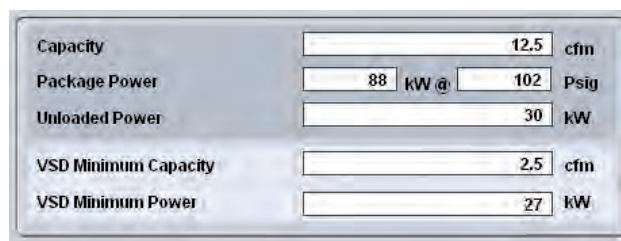
Model - Type in the model name of the compressor, this is usually taken from the compressor nameplate.

Manufacturer - Type in the name of the compressor manufacturer.

Interface type - Select the compressor's interface type. This should be identical to the interface type used in the X-Series system controller setup. Please see the X-Series system controller operator's manual for more information.

Controller Type - Select the compressor's controller type. This information should be obtained from your compressor service representative. The controller type will vary depending on the interface type selected.

8.3.1.3 Compressor Nameplate Data



Capacity - Type in the compressor's nameplate flow output.

Package Power - Type in the compressor's nameplate power consumption at its rated pressure.

Unloaded Power - Type in the compressor's nameplate power consumption running unloaded.

Minimum Capacity - Type in the minimum flow output of the compressor. This will be zero for fixed speed machines and dependent on nameplate data for variable speed machines.

Minimum Power - Type in the compressor's power consumption at its minimum speed. This will be zero for fixed speed machines and dependent on nameplate data for variable speed machines.

8.3.1.4 Managed Hours Source

Input – Selects where the Compressors Run Hours are derived from. This will be from the X-Series system controller or an I/O box.

Item – If an I/O box is selected, this selects which item in the I/O box to choose for the Managed Hours.

8.3.1.5 Additional Data Items

Up to six additional data items may be read from the compressor's local controller to be displayed on the compressor's EDV screen. Please note that additional data items may only be configured for compressors with IR- 485 or IRV-485 data types. The administrator also must have a Modbus or Multi485 table to find the addresses for any desired data points. Please refer to the SMG manual for Modbus tables for many **Ingersoll Rand** compressors.

Item	Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
1	Discharge Pressure	PSI	C03	Modbus	2	U16	1	0
2	Coolant Temperature	DEG	C03	Modbus	10	U16	1	0
3	Airend Temperature	DEG	C03	Modbus	11	U16	1	0
4	Discharge Temperature	DEG	C03	Modbus	12	U16	1	0
5	Inlet Temperature	DEG	C03	Modbus	13	U16	1	0
6	Separator Pressure Drop	PSI	C03	Modbus	18	U16	1	0

Description Text – Up to two lines of text can be used per user configurable data item for ease of identifying the data.

Unit Text – Use the drop down box to display a preconfigured list of Units or type in the units of the analog input used.

Module	Type	Address	Data	Multiplier	Decimal
C03	Modbus	2	U16	1	0
C03	Modbus	10	U16	1	0
C03	Modbus	11	U16	1	0
C03	Modbus	12	U16	1	0
C03	Modbus	13	U16	1	0
C03	Modbus	18	U16	1	0

Module - Select the module where the data resides from the dropdown list. The data can come from the X-series

System controller, a compressor, or from an I/O box installed on the system.

Type - Select the communication protocol, usually Modbus for Intellisys compressor controllers, and Multi485 for X-Series modules. Refer to the System Modbus Gateway manual for more information.

Address - Type in the Modbus or Multi485 address (in decimal)

Data - Select the proper data type for the controller. Refer to the controller documentation for more information. U16 will be the most common data type used.

U8	8bit, 1 byte, Unsigned
U16	16bit, 2 byte, 1 word, Unsigned
U32	32bit, 4 byte, 2 words, Unsigned
S8	8 bit, 1 byte, Signed
S16	16bit, 2 byte, 1 word, Signed
S32	32bit, 4 byte, 2 words, Signed
HRS	Run Hours

Multiplier - Some analog inputs may need to be multiplied by a value to obtain the correct display value. For example, if the reading is 100.3 but the analog input is transmitted as 1003, the multiplier would be 0.1.

Decimal - Select the desired number of decimal places you wish to display. For example 100.33 would be displayed as 100 with 0 decimal selected, 100.3 with 1 decimal selected, 100.33 with 2 decimal selected, and 100.330 with 3 decimal selected.

When you are finished viewing and/or changing the settings in the Compressor Configuration screen:



Click the exit button to leave the configuration screen without saving any changes. You will be returned to the COV.



Click the Save and Exit button to save your changes and return to the COV.

8.3.1.6 Intellisys Modbus Data Items

The following Intellisys Controller Modbus Tables provide the most common compressor data values that can be configured and monitored from the VX Box, up to six (6) for each compressor. The VX Box uses the Relative Address Modbus format. The Register Addresses shown in each of these Tables has been converted and is the Relative Modbus Address.

TABLE 1 SSR (REDEYE) CONTROLLER REGISTER STRUCTURE

Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
Discharge Pressure	PSI	C0x	Modbus	3	U16	1	0
Sump Pressure	PSI	C0x	Modbus	4	U16	1	0
Inlet Vacuum	PSI	C0x	Modbus	5	U16	0.1	1
Coolant Temperature	DEG	C0x	Modbus	6	U16	1	0
Airend Temperature	DEG	C0x	Modbus	7	U16	1	0
Discharge Temperature	DEG	C0x	Modbus	8	U16	1	0
Low Ambient Coolant Temp.	DEG	C0x	Modbus	9	U16	1	0

"x" is the Compressor number being configured

TABLE 2 SSR (SG) CONTROLLER REGISTER STRUCTURE

Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
Discharge Pressure	PSI	C0x	Modbus	3	U16	1	0
Sump Pressure	PSI	C0x	Modbus	4	U16	1	0
Inlet Vacuum	PSI	C0x	Modbus	5	U16	0.1	1
Coolant Temperature	DEG	C0x	Modbus	6	U16	1	0
Airend Temperature	DEG	C0x	Modbus	7	U16	1	0
Discharge Temperature	DEG	C0x	Modbus	8	U16	1	0
Separator Pressure Drop	PSI	C0x	Modbus	10	U16	1	0
Dry Side Sump Pressure	PSI	C0x	Modbus	12	U16	1	0

"x" is the Compressor number being configured

TABLE 3 SSR (SE) 15-100HP CONTROLLER REGISTER STRUCTURE

Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
Discharge Pressure	PSI	C0x	Modbus	3	U16	1	0
Sump Pressure	PSI	C0x	Modbus	4	U16	1	0
Separator Pressure Drop	PSI	C0x	Modbus	5	U16	1	0
Airend Temperature	DEG	C0x	Modbus	6	U16	1	0

"x" is the Compressor number being configured

TABLE 4 SIERRA (REDEYE) 125-200 HP CONTROLLER REGISTER STRUCTURE

Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
Discharge Pressure	PSI	C0x	Modbus	3	U16	1	0
2nd Stage Inlet Pressure	PSI	C0x	Modbus	4	U16	1	0
2nd Stage Discharge Pressure	PSI	C0x	Modbus	5	U16	1	0
Inlet Vacuum	PSI	C0x	Modbus	6	U16	1	0
Oil Filter In Pressure	PSI	C0x	Modbus	7	U16	1	0
Bearing Oil Pressure	PSI	C0x	Modbus	8	U16	1	0
1st Stage Discharge Temp.	DEG	C0x	Modbus	9	U16	1	0
2nd Stage Inlet Temp.	DEG	C0x	Modbus	10	U16	1	0
2nd Stage Discharge Temp.	DEG	C0x	Modbus	11	U16	1	0
Bearing Oil Temp.	DEG	C0x	Modbus	12	U16	1	0
Package Discharge Temp.	DEG	C0x	Modbus		U16	1	0

"x" is the Compressor number being configured

TABLE 5 SIERRA (SE) 50-100 HP CONTROLLER REGISTER STRUCTURE

Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
Discharge Pressure	PSI	C0x	Modbus	3	U16	1	0
Package Discharge Temp.	DEG	C0x	Modbus	4	U16	1	0
Bearing Oil Temp.	DEG	C0x	Modbus	5	U16	1	0
2nd Stage Inlet Temp.	DEG	C0x	Modbus	6	U16	1	0
2nd State Discharge Temp.	DEG	C0x	Modbus	7	U16	1	0
1st Stage Discharge Temp.	DEG	C0x	Modbus	8	U16	1	0

"x" is the Compressor number being configured

TABLE 6 SIERRA (SG) 125-400 HP CONTROLLER REGISTER STRUCTURE

Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
Discharge Pressure	PSI	C0x	Modbus	3	U16	1	0
2nd Stage Inlet Pressure	PSI	C0x	Modbus	4	U16	1	0
2nd Stage Discharge Pressure	PSI	C0x	Modbus	5	U16	1	0
Inlet Vacuum	PSI	C0x	Modbus	6	U16	1	0
Oil Filter In Pressure	PSI	C0x	Modbus	7	U16	1	0
Bearing Oil Pressure	PSI	C0x	Modbus	8	U16	1	0
1st Stage Discharge Temp.	DEG	C0x	Modbus	9	U16	1	0
2nd Stage Inlet Temp.	DEG	C0x	Modbus	10	U16	1	0
2nd Stage Discharge Temp.	DEG	C0x	Modbus	11	U16	1	0
Bearing Oil Temp.	DEG	C0x	Modbus	12	U16	1	0
Package Discharge Temp.	DEG	C0x	Modbus	13	U16	1	0

"x" is the Compressor number being configured

TABLE 7 RECIP (REDEYE) CONTROLLER REGISTER STRUCTURE

Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
1st Stage Discharge Pressure	PSI	C0x	Modbus	3	U16	1	0
Package Discharge Pressure	PSI	C0x	Modbus	4	U16	1	0
Air Filter Pressure Drop	PSI	C0x	Modbus	5	U16	1	0
Frame Oil Pressure	PSI	C0x	Modbus	6	U16	1	0
Package Water In Pressure	PSI	C0x	Modbus	7	U16	1	0
Package Water Out Pressure	PSI	C0x	Modbus	8	U16	1	0
Pressure AA	PSI	C0x	Modbus	9	U16	1	0
Pressure BB	PSI	C0x	Modbus	10	U16	1	0
1st Stage Discharge Temp.	DEG	C0x	Modbus	11	U16	1	0
2nd Stage Discharge Temp.	DEG	C0x	Modbus	12	U16	1	0
Frame Oil Temperature	DEG	C0x	Modbus	13	U16	1	0
Package Water In Temp.	DEG	C0x	Modbus	14	U16	1	0
2nd Stage Air In Temp.	DEG	C0x	Modbus	15	U16	1	0
1st Stage Water Out Temp.	DEG	C0x	Modbus	16	U16	1	0
2nd Stage Water Out Temp.	DEG	C0x	Modbus	17	U16	1	0

"x" is the Compressor number being configured

TABLE 8 RECIP (SG) CONTROLLER REGISTER STRUCTURE

Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
Oil Pressure	PSI	C0x	Modbus	3	U16	1	0
Water In Pressure	PSI	C0x	Modbus	4	U16	1	0
Water Out Pressure	PSI	C0x	Modbus	5	U16	1	0
Package Discharge Pressure	PSI	C0x	Modbus	6	U16	1	0
1st Stage Discharge Pressure	PSI	C0x	Modbus	7	U16	1	0
2nd Stage Discharge Pressure	PSI	C0x	Modbus	8	U16	1	0
Suction Pressure	PSI	C0x	Modbus	9	U16	1	0
Inlet Vacuum	PSI	C0x	Modbus	10	U16	1	0
Oil Temperature	DEG	C0x	Modbus	11	U16	1	0
Water In Temperature	DEG	C0x	Modbus	12	U16	1	0
2nd Stage Inlet Temperature	DEG	C0x	Modbus	13	U16	1	0
3rd Stage Inlet Temperature	DEG	C0x	Modbus	14	U16	1	0
Package Discharge Temperature	DEG	C0x	Modbus	15	U16	1	0
1st Stage Discharge Temperature	DEG	C0x	Modbus	16	U16	1	0
2nd Stage Discharge Temperature	DEG	C0x	Modbus	17	U16	1	0
3rd Stage Discharge Temperature	DEG	C0x	Modbus	18	U16	1	0

"x" is the Compressor number being configured

TABLE 9 NIRVANA (SGN) CC (CONTACT COOLED) CONTROLLER REGISTER STRUCTURE

Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
Discharge Pressure	PSI	C0x	Modbus	3	U16	1	0
Sump Pressure	PSI	C0x	Modbus	4	U16	1	0
Dry Side Sump Pressure	PSI	C0x	Modbus	10	U16	0.1	1
Coolant Temperature	DEG	C0x	Modbus	11	U16	1	0
Airend Temperature	DEG	C0x	Modbus	12	U16	1	0
Discharge Temperature	DEG	C0x	Modbus	18	U16	1	0
Separator Pressure Drop	DEG	C0x	Modbus	19	U16	1	0

"x" is the Compressor number being configured

TABLE 10 NIRVANA (SGNE) CC (CONTACT COOLED) CONTROLLER REGISTER STRUCTURE

Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
Discharge Pressure	PSI	C0x	Modbus	3	U16	1	0
Sump Pressure	PSI	C0x	Modbus	4	U16	1	0
Dry Side Sump Pressure	PSI	C0x	Modbus	5	U16	1	0
Interstage Pressure	PSI	C0x	Modbus	10	U16	1	0
Coolant Temperature	DEG	C0x	Modbus	11	U16	1	0
Airend Temperature	DEG	C0x	Modbus	12	U16	1	0
Discharge Temperature	DEG	C0x	Modbus	13	U16	1	0
Inlet Temperature	DEG	C0x	Modbus	14	U16	1	0
Cooler Out Temperature	DEG	C0x	Modbus	18	U16	1	0
Separator Pressure Drop	PSI	C0x	Modbus	19	U16	1	0

"x" is the Compressor number being configured

TABLE 11 NIRVANA SGNE OF (OIL-FREE) CONTROLLER REGISTER STRUCTURE

Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
Discharge Pressure	PSI	C0x	Modbus	3	U16	1	0
2nd Stage Inlet Pressure	PSI	C0x	Modbus	4	U16	1	0
2nd Stage Discharge Pressure	PSI	C0x	Modbus	5	U16	1	0
Inlet Vacuum	PSI	C0x	Modbus	6	U16	1	0
Oil Filter Pressure Drop	PSI	C0x	Modbus	7	U16	1	0
Bearing Oil Pressure	PSI	C0x	Modbus	8	U16	1	0
2nd Stage Inlet Temperature	DEG	C0x	Modbus	9	U16	1	0
1st Stage Discharge Temperature	DEG	C0x	Modbus	10	U16	1	0
2nd Stage Discharge Temperature	DEG	C0x	Modbus	11	U16	1	0
Bearing Oil Temperature	DEG	C0x	Modbus	11	U16	1	0
Discharge Temperature	DEG	C0x	Modbus	11	U16	1	0
1st Stage Inlet Temperature	DEG	C0x	Modbus	19	U16	1	0

"x" is the Compressor number being configured

TABLE 12 NIRVANA 15-30 KW (20-40 HP) DF CONTROLLER REGISTER STRUCTURE

Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
Discharge Pressure	PSI	C0x	Modbus	3	U16	1	0
Aftercooler Discharge Pressure	PSI	C0x	Modbus	4	U16	1	0

"x" is the Compressor number being configured

TABLE 13 SSR UP (SE) CONTROLLER REGISTER STRUCTURE

Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
Package Discharge Pressure	PSI	C0x	Modbus	3	U16	1	0
Sump Pressure	PSI	C0x	Modbus	4	U16	1	0
Airend Temperature	DEG	C0x	Modbus	5	U16	1	0
Separator Pressure Drop	PSI	C0x	Modbus	6	U16	1	0

"x" is the Compressor number being configured

TABLE 14 ESA (SE) 22 – 150 KW CONTROLLER REGISTER STRUCTURE

Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
Package Discharge Pressure	PSI	C0x	Modbus	3	U16	1	0
Sump Pressure	PSI	C0x	Modbus	4	U16	1	0
Airend Temperature	DEG	C0x	Modbus	5	U16	1	0
Separator Pressure Drop	PSI	C0x	Modbus	6	U16	1	0

"x" is the Compressor number being configured

TABLE 15 R-SERIES (S3) CONTROLLER REGISTER STRUCTURE

Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
Package Discharge Pressure	PSI	C0x	Modbus	3	U16	1	0
Sump Pressure	PSI	C0x	Modbus	4	U16	1	0
Airend Temperature	DEG	C0x	Modbus	7	U16	1	0
Separator Pressure Drop	PSI	C0x	Modbus	10	U16	1	0

"x" is the Compressor number being configured

TABLE 16 VELOCITY (SGV) CONTROLLER REGISTER STRUCTURE

Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
Discharge Pressure	PSI	C0x	Modbus	3	U16	1	0
Sump Pressure	PSI	C0x	Modbus	4	U16	1	0
Inlet Vacuum	PSI	C0x	Modbus	5	U16	1	0
Coolant Temperature	DEG	C0x	Modbus	6	U16	1	0
Airend Temperature	DEG	C0x	Modbus	7	U16	1	0
Discharge Temperature	DEG	C0x	Modbus	8	U16	1	0
Cooler Out Coolant Temperature	DEG	C0x	Modbus	9	U16	1	0
Separator Pressure Drop	DEG	C0x	Modbus	10	U16	1	0
Coolant Filter In Pressure	PSI	C0x	Modbus	11	U16	1	0
Coolant Filter Out Pressure	PSI	C0x	Modbus	12	U16	1	0
Coolant Filter Pressure Drop	PSI	C0x	Modbus	13	U16	1	0
Interstage Pressure	PSI	C0x	Modbus	14	U16	1	0

"x" is the Compressor number being configured

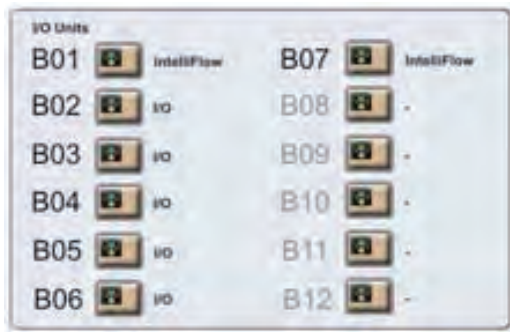
TABLE 17 VELOCITY (SGNEV) CC (CONTACT COOLED) CONTROLLER REGISTER STRUCTURE

Description	Unit	Module	Type	Address	Data	Multiplier	Decimal
Discharge Pressure	PSI	C0x	Modbus	3	U16	1	0
Sump Pressure	PSI	C0x	Modbus	4	U16	1	0
Inlet Vacuum	PSI	C0x	Modbus	5	U16	1	0
Interstage Pressure	DEG	C0x	Modbus	6	U16	1	0
Coolant Filter In Pressure	DEG	C0x	Modbus	7	U16	1	0
Coolant Filter Out Pressure	DEG	C0x	Modbus	8	U16	1	0
Cooler Out Coolant Temperature	DEG	C0x	Modbus	10	U16	1	0
Injected Coolant Temperature	DEG	C0x	Modbus	11	U16	1	0
Airend Temperature	PSI	C0x	Modbus	12	U16	1	0
Aftercooler Discharge Temperature	PSI	C0x	Modbus	13	U16	1	0
Inlet Temperature	PSI	C0x	Modbus	14	U16	1	0
Cooler Out Temperature	PSI	C0x	Modbus	15	U16	1	0
Separator Pressure Drop	PSI	C0x	Modbus	19	U16	1	0
Coolant Filter Pressure Drop	PSI	C0x	Modbus	22	U16	1	0

"x" is the Compressor number being configured

8.4 I/O Box and Intelliflow Setup

The I/O Box and Intelliflow Setup area shows the network address and whether an I/O Box or Intelliflow Valve is connected at that address.



B01 through B12 - Represents the address of the I/O box or Intelliflow Valve.

Equipment Type – Intelliflow for an Intelliflow valve, or I/O for an I/O Box.

8.4.1 I/O Box Configuration

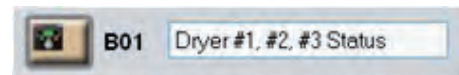
The I/O Box configuration screen is set independently of the I/O Box local configuration but in almost all cases should be configured identically.



Click on the I/O Box icon next to the desired I/O Box to open that I/O Box's configuration screen.

8.4.2 I/O Box Setup Information

The I/O Box configuration screen is set independently of the I/O Box local configuration but in almost all cases should be configured identically. Please note that for Intelliflow IX configurations only the title and module type need be set.



I/O Box Name - Type in the name of the I/O Box that will appear on the EOVS screen and the EDV screen.



Module Type – Selects either an I/O Box or an IntelliFlow from a drop down menu. Select I/O to configure the I/O Box. (See Section 7.4.2 for the IntelliFlow Configuration).

8.4.2.1 I/O Box Analog Input Configuration

Analogue	Description	Unit	Multiplier	Decimal
Input 1	Pressure @ dryer 1	Psig	0.01	1
Input 2	Pressure @ dryer 2	Psig	0.01	1
Input 3	Dewpoint 1	°F	1	1
Input 4	Dewpoint 2	°F	1	1

Description Text – Type in the description of the Analog Input.

Unit Text – Use the drop down box to display a preconfigured list of Units or type in the units of the analog input used.



Multiplier - Some analog inputs may need to be multiplied by a value to obtain the correct display value. For example, if the reading is 100.3 but the analog input is transmitted as 1003, the multiplier would be 0.1.

Decimal - Select the desired number of decimal places you wish to display. For example 100.33 would be displayed as 100 with 0 decimal selected, 100.3 with 1 decimal selected, 100.33 with 2 decimal selected, and 100.330 with 3 decimal selected.

8.4.2.2 I/O Box Relay Output Configuration

Relay	Description
Output 1	Start Dryer 1
Output 2	Start Dryer 2
Output 3	Close Valve 1
Output 4	Close Valve 2
Output 5	(Not Used)
Output 6	(Not Used)

Description Text – Type in the description of the Relay Output.

8.4.2.3 I/O Box Digital Input Configuration

Digital	Description
Input 1: H01	H01 Target Setpoints Active
Input 2: H02	H02 Target Setpoints Active
Input 3: H03	H03 Target Setpoints Active
Input 4: H04	H04 Target Setpoints Active
Input 5: MΣ-	Manual
Input 6: - Σ-	Forced Open
Input 7: XΣX	Forced Closed

Description Text – Type in the description of the Digital Input.

When you are finished viewing and/or changing the settings in the I/O Box Configuration screen:



Click the exit button to leave the configuration screen without saving any changes. You will be returned to the COV.



Click the Save and Exit button to save your changes and return to the COV.

8.5 Account Management

The administrator can create any number of users desired and assign each user one of three levels of access, as well as assigning email notifications to various events that may occur.



Click the account management button on the COV to open the Account Management utility.



The list of accounts that currently exist are listed by user name and access rights. Clicking on an account will highlight that account in blue and display its attributes. The attributes will be displayed on the right side of the account management utility. Any Remote Messaging filters will also be displayed for each account.

8.5.1 User Account Configuration

To modify an existing account, click to highlight that account. To create a new user account, click any existing account to begin with.

view	User Name
pwview	User Password
1-VIEW	Access Level
24:00	Purge Timeout
view@factory.com	e-mail
	SMS Phone Number
<input type="checkbox"/> SMS Text	<input type="checkbox"/> SMS SYS OK

User Name - Type in a unique user name (new account only).

User Password - Type in a password.

Access Level - Select the access rights from the drop down menu.

Access rights are as follows:

1. VIEW – The user is able to view all information on the SOV and EOVS screens and their detail view screens. The user is unable to change any setpoints or access the COV screen.
2. USER – The user has all rights available to the VIEW access level as well as being able to change setpoints on the table configuration screens, pressure schedule screens, and is able to manually start and stop compressors, as well as start and stop the X-Series System Controller.
3. ADMIN – The user has all rights of the VIEW, and USER access levels as well as full access to the COV screen, the account management utility, and the diagnostics screen.

NOTE: A maximum of five users can be logged in at one time A maximum of one administrator logged in at one time.

Purge Timeout - Select the time when the account will be logged out from the drop down menu.

Email - Type in the email address for the user to receive emails from the VX Box. This can also be an SMS phone number.

Examples are:

AT&T	phonenumber@txt.att.net
Cingular:	phonenumber@cingularme.com
Nextel:	phonenumber@messaging.nextel.com
Sprint:	phonenumber@messaging.sprintpcs.com
T-Mobile:	phonenumber@tmomail.net
Verizon:	phonenumber@vtext.com
US Cellular	phonenumber@email.uscc.net
Boost Mobile	phonenumber@myboostmobile.com
Virgin Mobile:	phonenumber@vmobl.com

NOTE: These addresses are subject to change. Please check with the carrier for their current SMS address

Also, multiple email address, up to 10, may be entered to support "grouping" for each user. Each email address can have a maximum 64 characters. The maximum number of characters for the email address textbox is limited to 630 characters (including all semicolons).

Enter them as follows:

js@factory.com;st@plant.com;df@store.com;

SMS Phone Number - Type in the SMS Phone Number for the user to receive SMS Messaging from the VX Box via an Email to SMS service provider.

SMS Text – Check this box for the user to receive SMS Messaging from the VX Box for Events.

SMS SYS OK - Check this box for the user to receive the System Performance Report via SMS Messaging from the VX Box.

8.5.2. Remote Message Filter Configuration

The Remote Message Filter sets the e-mail/SMS filter settings for the user. The Event filter will set which, if any, events will dispatch an email to the user. Checking an event will cause that event to send an email. Multiple users may receive emails for any or all events. After selecting which events will generate an email the administrator selects which piece of equipment the user will receive emails about using the Modules filter.

8.5.2.1 Event Configuration

Remote Message Filter: Events		Modules	
VX	<input type="checkbox"/> SYS OK	C01	<input type="checkbox"/> B01
	<input type="checkbox"/> Warning	C02	<input type="checkbox"/> B02
	<input type="checkbox"/> RS485 Error	C03	<input type="checkbox"/> B03
XI	<input type="checkbox"/> Warning	C04	<input type="checkbox"/> B04
	<input type="checkbox"/> Shutdown	C05	<input type="checkbox"/> B05
C#	<input type="checkbox"/> Warning	C06	<input type="checkbox"/> B06
	<input type="checkbox"/> Shutdown	C07	<input type="checkbox"/> B07
	<input type="checkbox"/> Service	C08	<input type="checkbox"/> B08
B#	<input type="checkbox"/> A: Warning	C09	<input type="checkbox"/> B09
	<input type="checkbox"/> T: High level warning	C10	<input type="checkbox"/> B10
		C11	<input type="checkbox"/> B11
		C12	<input type="checkbox"/> B12

VX - Send an email if the User wants to receive the System Efficiency Report (SYS OK), if the VX box reports a warning, or if communications are interrupted to the VX box.

XI - Send an email if the system controller reports a warning (Alarm) or shutdown (Trip) condition

C# - Send an email if a selected compressor reports a warning (Alarm), shutdown (Trip), or service due condition as set up using the service reminder utility

B# - Send an email if a selected I/O Box or IntelliFlow Valve reports an alarm or trip condition as configured at the I/O Box or IntelliFlow Valve.

8.5.2.2 Modules Configuration

Remote Message Filter: Modules	
C01	<input type="checkbox"/> B01
C02	<input type="checkbox"/> B02
C03	<input type="checkbox"/> B03
C04	<input type="checkbox"/> B04
C05	<input type="checkbox"/> B05
C06	<input type="checkbox"/> B06
C07	<input type="checkbox"/> B07
C08	<input type="checkbox"/> B08
C09	<input type="checkbox"/> B09
C10	<input type="checkbox"/> B10
C11	<input type="checkbox"/> B11
C12	<input type="checkbox"/> B12

C01 – C12 - The user will only receive emails from compressors which are checked in the modules filter. Click on the Check Box to enable events from that compressor.

B01 – B12 - The user will only receive emails from I/O Boxes or IntelliFlow's which are checked in the modules filter. Click on the Check Box to enable events from that I/O Box or IntelliFlow compressor.

Once you have finished updating all of the fields:



Click the add button to update the information. New accounts will appear in the list, and modified accounts will now have their settings saved.

To remove an account:



Click the remove button, the account will no longer appear in the account list. Be sure that the account you intend to remove is highlighted. Otherwise, the first account in the list will be deleted.

When you are finished viewing and/or changing the settings in the Account Management screen:



Click the exit button to leave the account management screen. You will be returned to the COV. Since all information is saved using the add button there is no save and exit button.

Once you have finished updating all of the fields:

When you are finished viewing and/or changing the settings in the Account Management screen:

8.6 Diagnostics

The Diagnostics page allows the administrator to view the Ethernet configuration of the VX box, which users are currently logged in, serial communications information, and VX box software information.



Click on the diagnostics button to open the diagnostics utility.



8.6.1 Serial Communications Diagnostics

Module	Requests:		Communications:		Broadcasts Received
	Stack	Time	Valid	Error	
SYS	0	0	0	0	167
C01	1	0.5	3	0	5
C02	1	0.5	6	0	5
C03	2	1	6	0	6
C04	3	1.5	7	0	5
C05	2	1	0	0	0
C06	1	0.5	0	0	0
C07					
C08					
C09					
C10					
C11					
C12					
B01	1	0.5	3	0	11
B02	0	0	0	0	0
B03	0	0	0	0	0
B04	0	0	0	0	0
B05	0	0	0	0	0
B06					
B07					
B08					
B09					
B10					
B11					
B12					
Total	11	5.5	25	0	199

The serial communications diagnostics shows the traffic on the RS-485 network, between the X-Series System controller, the compressors, the I/O Box , and the VX box. Module:

The X-Series System controller (SYS), the Compressors (C01-C12), and the I/O Box or IntelliFlow (B01-B12)

Requests:

Stack – Number of communication requests that are waiting to be sent on the RS-485 network.

Time – The estimated time, in seconds, required to process all communication requests currently on the stack.

Communications:

Valid – The number of valid communications over the past minute.

Error – The number of invalid or rejected communications over the past minute (should not exceed 2). The box will turn yellow if errors occur.

Broadcasts Received:

The number of valid broadcast messages received from the unit over the past minute. The number of expected broadcasts per minute is approximately 30 for the X-Series System Controller, 6 for each Compressor, and 12 for each CX or I/O Box or IntelliFlow Valve.

The box will turn red if no broadcasts are received. This indicates the module is off line, powered down or the network communications link to the module has been disrupted/broken.

8.6.2 Software Versions

Software Versions	
Firmware:	{SY0819.00.TXIRWEBS.E09.Sep 21 2010.16:00:00}
Website:	IR.DEMO version 9.0 rev8. 21/09/2010
ID:	>Y081R18.00
SN:	108

Firmware - Represents the embedded software in the VX Box

Website - Represents the currently loaded graphics.

ID – Represents the VX Part Number

SN – Represents the VX Serial Number

NOTE: These should only be referenced when troubleshooting any issues.

8.6.3 VX Box Connectivity

The current network information for the VX box is displayed, including the current IP address, the MAC address (hardware address) of the VX box, and a log of all users who are currently logged into the visualization software.

Purge All Online Users 	VX IP Address: 192.168.1.2
	VX MAC Address: 001AF100056F
VX Users:	
number of users online: 1	
demo,***, ADMIN, 192.168.1.3 ,000FFE7B09C9 ,3576	

VX IP Address – Displays the current IP address of the VX.

VX MAC Address - Displays the current MAC address of the VX.

VX Users - Displays the current Users logged into the VX.

NOTE: The above information is view only.



Purge All Online Users – Click this button to Logout ALL current users of the VX.

8.6.4 Ethernet Configuration

Caution! Changing the Ethernet configuration of the VX box may cause the visualization software to become unresponsive and require IT or other support to return the VX box to an operational condition. Be certain all Ethernet settings are correct before saving changes.

The Ethernet configuration allows the user to select how the VX box will be connected to the LAN.

8.6.4.1 Ethernet Configuration via DHCP

<input checked="" type="radio"/> Obtain an IP address automatically by hostname (DHCP)	10.40.192.104
<input type="radio"/> Use the following IP address settings:	
IP Address:	10.40.192.104
Subnet Mask:	255.255.248.0
Default Gateway:	10.40.192.1
Primary DNS Server:	10.40.16.100
Secondary DNS Server:	10.80.9.96
Email Server (SMTP):	65.54.19.136

If the VX box is to obtain an IP address via DHCP, click this radio button. The assigned IP address will appear below this selection. Please note that depending on the LAN architecture, not all users will be able to view the visualization software from their PC.

If email notifications are to be used, the SMTP server address must be obtained from IT and entered in this location.

8.6.4.2 Ethernet Configuration via Static IP Address

<input type="radio"/> Obtain an IP address automatically by hostname (DHCP)	10.40.192.104
<input checked="" type="radio"/> Use the following IP address settings:	
IP Address:	10.40.192.104
Subnet Mask:	255.255.248.0
Default Gateway:	10.40.192.1
Primary DNS Server:	10.40.16.100
Secondary DNS Server:	10.80.9.96
Email Server (SMTP):	201.1.1.250

If the VX box has a static IP address assigned by the IT department, this radio button should be clicked and the appropriate network settings should be typed in. These settings are to be obtained from the IT department for installation and commissioning.

If email notifications are to be used, the SMTP server address must be obtained from IT and entered in this location.

When you are finished viewing and/or changing the settings in the Diagnostics screen:



Click the exit button to leave the configuration screen without saving any changes. You will be returned to the COV.



Click the Save and Exit button to save your changes and return to the COV.

NOTE: If you change the Ethernet configuration, you will need to power cycle the VX box before these changes will take effect.

NOTE: Cookies:

Although Visualization is hosted on the VX Box, and not on the PC, all user specific language and preference settings are stored on the PC as a cookie. This is common practice for web based applications and your PC will be setup to accommodate for this. All 'cookies' (preference settings files) will be stored on your PC in a dedicated memory location. If the 'cookies' on your PC are deleted the Visualization will revert to default language and preference settings

8.7 VX Options Screen

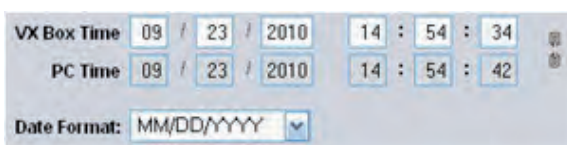
The VX Options screen allows the ADMIN to manage the time, date, language, e-mail, and SMS settings for the VX Box.



Click the VX Box Options button to open the options screen.



8.7.1 VX Time and Date



VX Box Time – Displays the current date and time for the VX Box.

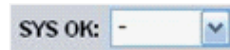
PC Time – Displays the current date and time for your PC.



Click the synchronize button to update the VX box time and date to match that of your PC.

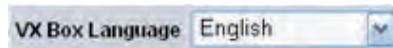
Date Format – Select from the drop down box the date format for system time stamps

8.7.2 VX SYS OK e-mail Notification



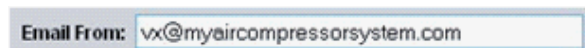
SYS OK - Select from the drop down box the time of the day (in whole hours) when you want the VX Box to e-mail the System Efficiency Report.

8.7.3 VX Language Setup



VX Box Language - Select from the drop down menu the language for the Visualization software.

8.7.4 VX Email Setup



Email From - Allows the ADMIN to define the preface for the email when the VX sends an email to a user. In the example entered, the User would receive an email from vx@myaircompressorsystem.com. The ADMIN can personalize this to follow the same format as their email system. Example: vx@irco.com



– Select from the drop down menu if the email server requires authentication to send an email message.

Name – Type in the User name assigned to the VX Box email address.

Password - Type in the User password assigned to the VX Box email address

8.7.5 VX SMS Setup

To configure the VX SMS to output SMS messages using an internet SMS messaging service provider.

- Create an account with a provider who offers an Email to SMS service.

For example: www.txtlocal.co.uk

Note: You will need an email address and mobile phone number to create an account.

- Select 'Email to SMS' function from the SMS Service dropdown menu.
- Enter your account email address (same address that is used to create the account with the provider) and the provider's email address.

Note: Characters prior to @ are of no importance (the phone number entered in the account menu will be used automatically as a prefix).

Note: Some providers need a subject (check with provider's specification).

For example; Enter the Site/Installation name.

- Go to the User Account configuration screen and select the appropriate user account.
- Enter the user's mobile telephone number. (Check with the provider's specification for country code prefix settings).
- Activate the 'SMS TEXT' function.
- If required, also activate the 'SMS SYS OK' function.
- Select the necessary Events and Modules from the Remote Message Filter.

8.7.5.1 SMS via Landline Phone Modem

To configure the VX SMS to output SMS messages using the landline phone modem set the SMS Service dropdown menu to "--" (dashes). On the User Accounts configuration screen enter the landline SMS messaging service provider's phone number

From –Allows the ADMIN to define the preface for the email when the VX sends an email to a user. In the example entered, the User would receive an email from vx@myaircompressorsystem.com. The

ADMIN can personalize this to follow the same format as their email system. Example: vx@irco.com.

Subject – Type in the Subject text for the SMS Message.

To – Type in the Email address for the SMS Email Service.

When you are finished viewing and/or changing the settings in the Options screen:



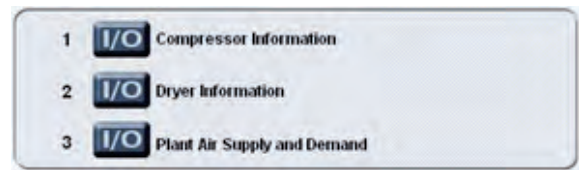
Click the exit button to leave the configuration screen without saving any changes. You will be returned to the COV.



Click the Save and Exit button to save your changes and return to the COV.

8.8 I/O Monitoring Setup

The I/O Monitoring Setup area displays the 3 I/O Monitoring screens that can be configured.



I/O 1 through I/O 3 - Represents the 3 configurable I/O Monitoring screen

8.8.1 VX I/O Monitoring Configuration

The ADMIN programs up to 3 screens for the I/O Monitoring. Each screen can be configured to display data from the X-Series System Controller, X-Series Compressor Interfaces, I/O Boxes, or IX IntelliFlow Controllers.

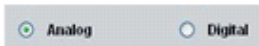


Click the I/O Monitoring button to open any of the 3 I/O Monitoring configuration screens.

8.8.2 I/O Monitoring Analog Configuration



I/O Screen Name - Type in the name of the I/O Monitor screen that will appear on the EOVS screen and the EDV screen for that compressor.



I/O Screen Type - Select the I/O Monitor screen data to be configured by clicking on one of the 2 radio buttons. Selecting Analog accesses the 12 Analog data points that can be configured. Selecting Digital accesses the 16 Digital points that can be configured.

8.8.2.1 I/O Monitoring Analog Input Configuration

Up to 12 data items may be configured from the X-Series system components. These data points can be derived from the X-Series System Controller, X-Series Compressor Interfaces, I/O Boxes, or IX IntelliFlow. The administrator also must have the Modbus or Multi485 table listings to find the addresses for any desired data points. Please refer to the Modbus manuals for the listings of these tables for the X-Series system components.



Description	Unit
1 Dryer #1	...
Dew Point	Deg F

Description Text – Type in up to two lines of text that can be used per data item for ease of identifying the data.

Unit Text – Use the drop down box to display a preconfigured list of Units or type in the units of the analog input used.

Module	Type	Address	Data	Multiplier	Decimal
B01	Airbus485	0001	S16	1	0

Module - Select the module where the data resides from the dropdown list. The data can come from the X-series System controller, a compressor, or from an I/O box installed on the system.

Type - Select the communication protocol, usually Modbus for Intellisys compressor controllers, and Multi485 for X-Series modules. Refer to the System Modbus Gateway manual for more information.

Address - Type in the Modbus or Multi485 address (in decimal)

Data - Select the proper data type for the controller. Refer to the controller documentation for more information. U16 will be the most common data type used.

U8	8bit, 1 byte, Unsigned
U16	16bit, 2 byte, 1 word, Unsigned
U32	32bit, 4 byte, 2 words, Unsigned
S8	8 bit, 1 byte, Signed
S16	16bit, 2 byte, 1 word, Signed
S32	32bit, 4 byte, 2 words, Signed
HRS	Run Hours

Multiplier - Some analog inputs may need to be multiplied by a value to obtain the correct display value. For example, if the reading is 100.3 but the analog input is transmitted as 1003, the multiplier would be 0.1.

Decimal - Select the desired number of decimal places you wish to display. For example 100.33 would be displayed as 100 with 0 decimal selected, 100.3 with 1 decimal selected, 100.33 with 2 decimal selected, and 100.330 with 3 decimal selected.

Min	Max
-156	78

Min – Type in the Minimum gauge value setting. This setting can be adjusted to make the gauge pointer show a narrow range if required. This setting influences the gauge pointer display only and has no effect on the displayed value below the gauge, or the data logged value.

Max – Type in the Maximum gauge value setting. This setting can be adjusted to make the gauge pointer show a narrow range if required. This setting influences the gauge pointer display only and has no effect on the displayed value below the gauge, or the data logged value.



Style - Use the drop down box to display a preconfigured list of Gauges to be used for the analog input.

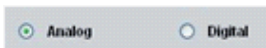
- 1 is
- 2 is
- 3 is
- 4 is
- 5 is

8.8.3 I/O Monitoring Digital Configuration





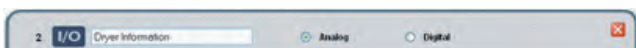
I/O Screen Name - Type in the name of the I/O Monitor screen that will appear on the EOVS screen and the EDV screen for that compressor.



I/O Screen Type - Select the I/O Monitor screen data to be configured by clicking on one of the 2 radio buttons. Selecting Analog accesses the 12 Analog data points that can be configured. Selecting Digital accesses the 16 Digital points that can be configured.

8.8.3.1 I/O Monitoring Digital Input Configuration

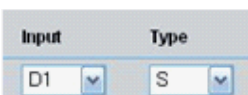
Up to 16 data items may be configured from the X-Series system components. These data points can be derived from the X-Series System Controller, I/O Boxes, or IX IntelliFlow. The administrator also must have the I/O configuration listings to find the addresses for any desired data points. Please refer to the X-Series System Controller, I/O Boxes, or IX IntelliFlow manuals for the listings of these components.



Description	Module
1 Dryer#1 On	B01

Description Text – Type in one line of text that can be used per data item for ease of identifying the data.

Module - Select the module where the data resides from the dropdown list. The data can come from the X-series System controller, an I/O box, or from an Ix IntelliFlow box installed on the system.



Input - Selects which digital input to monitor from the Module selected.

Type – Selects the type of Digital Input: A for alarm, T for Trip, or S for System.



LED Status - Select the Digital input LED status color to be displayed on the I/O Monitoring screen by clicking on one of the 4 radio buttons.

When you are finished viewing and/or changing the settings in the I/O Monitoring Configuration screen:



Click the exit button to leave the configuration screen without saving any changes. You will be returned to the COV.



Click the Save and Exit button to save your changes and return to the COV.

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