Honeywell

HVBGPIO

Version 1.2

User Guide

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User Guide

Revisions

Issue	Date	Revisions
A	03/10	New document
B	03/10	Brought into Honeywell template; Updated back cover; minor wording changes

Contents

Figures

Tables

About This Document

This document introduces the HVBGPIO, a module that can be mounted in a standard VideoBloX chassis to provide the functions of PTZ control, alarm input, and relay output.

Overview of Contents

This document contains the following chapters and appendixes:

- *Chapter 1, Introduction*, provides an overview of the HVBGPIO and describes the features. It also describes the layout and function of the LEDs and DIP switch settings.
- *Chapter 2, Web Browser*, provides procedures for configuring and upgrading the HVBGPIO through a web browser.
- *Chapter 3, Alarm Inputs*, describes the two working modes for the 24 alarm inputs and how to configure alarm type settings.
- *Chapter 4, Relay Outputs*, covers how to configure the relay outputs.
- *Chapter 5, UART Ports*, describes how to configure the UART ports.
- *Chapter 6, Device Control Mode*, details how to configure the HVBGPIO to control another device, such as a DVR or multiplexer.
- *Chapter 7, PTZ Operation*, covers how to configure the HVBGPIO to control PTZ devices.
- *Appendix A, Typical Applications*, describes two typical HVBGPIO applications.
- *Appendix B, Sample Configuration*, gives an example of how to operate the HVBGPIO in the VideoBloX system.

Warranty and Service

Subject to the terms and conditions listed on the Product warranty, during the warranty period Honeywell will repair or replace, at its sole option, free of charge, any defective products returned prepaid.

In the event you have a problem with any Honeywell product, please call Customer Service at 1.800.796.CCTV for assistance or to request a **Return Merchandise Authorization (RMA)** number.

Be sure to have the model number, serial number, and the nature of the problem available for the technical service representative.

Prior authorization must be obtained for all returns, exchanges, or credits. **Items shipped to Honeywell without a clearly identified Return Merchandise Authorization (RMA) number may be refused.**

Typographical Conventions

This document uses the following typographical conventions:

Font	What it represents	Example
Helvetica	Keys on the keyboard	Press Ctrl+C
`Lucida`	Text strings displayed on the screen	The message `Unauthorized` displays.
	Syntax	`(object) entered`
Swiss721 BT Bold	Words or characters that you must type. The word "enter" is used if you must type text and then press the Enter or Return key.	Enter the **password**.
	Menu titles and other items you select	Double-click **Open** from the **File** menu.
	Buttons you click to perform actions	Click **Exit** to close the program.
Italic	Placeholders: words that vary depending on the situation	*user name*
	Cross-reference to an external source Cross-reference within the document	Refer to the *VideoBloX User Guide*. See *Chapter 1, Introduction*.

1

Introduction

This chapter provides an overview of the HVBGPIO and lists the features. It also shows the front and rear panels and describes the LED indicators and DIP switch settings.

Overview

The HVBGPIO is a module that can be mounted in a standard VideoBloX chassis, providing the functions of PTZ control, alarm input, and relay output. It can also provide a one-box solution for PTZ control, alarm input, and relay output connectivity.

The HVBGPIO has four PTZ ports, four relay outputs, 24 alarm inputs, one serial port, and one Ethernet port. Up to nine protocols can be supported, including Pelco D, Pelco P, Diamond, JVC, and VCL. For extra flexibility, the HVBGPIO also supports a user-defined protocol that allows a user to operate a PTZ device with a protocol that is not one of the product protocols.

RS485 can be supported by all four PTZ ports, but RS232 and RS422 is only supported by the PTZ4 port.

24 alarm inputs support two alarm types—Contact Closure (CC) and End of Line (EOL) resistor with two options—Normally Closed (NC) and Normally Open (NO). In EOL mode, a 2.2K Ohm external resistor is required. The COM1 RJ45 port on the rear panel supports both RS232 and RS422. This port is used to receive control commands from MAXPRO-Net.

Layout

The front and rear views are shown below.

Figure 1-1 Front Panel

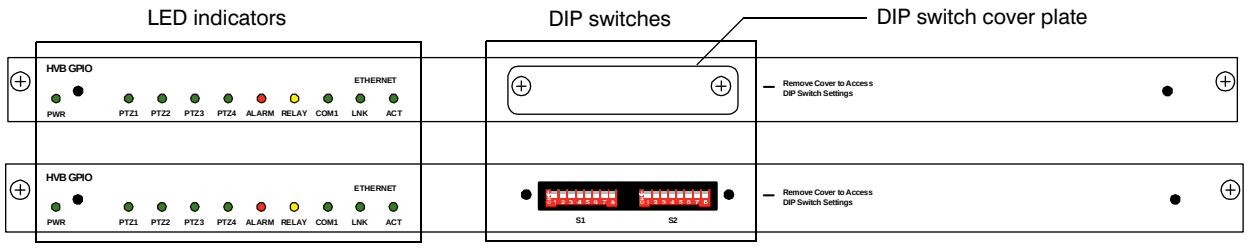
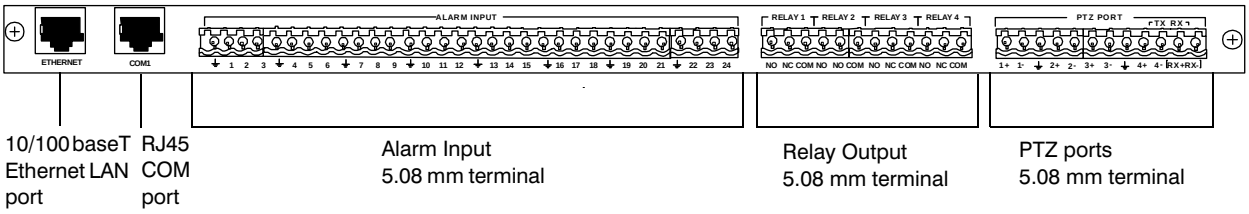


Figure 1-2 Rear Panel



Features

The HVBGPIO has the following features:

- 24 alarm inputs, support two kinds of alarm types—CC and EOL resistor—with two options—NC and NO. In EOL mode, a 2.2K Ohm external resistor is required.
- Four relay outputs, working at up to 1A @ 50V
- Four Universal Asynchronous Receiver/Transmitter (UART) control ports, supporting up to nine PTZ protocols
- 10/100 baseT Ethernet LAN connectivity
- One serial port for communication and control
- DIP switches for Alarm/Relay/PTZ/COM settings
- 66.7 MHz processor core Motorola® ColdFire®, 32-bit RISC CPU
- 16 MB Flash memory for the system firmware
- uClinux™ embedded operating system
- Firmware is upgradable using the web browser
- Non-volatile RAM memory to store downloadable system variables, configuration, and system code extensions
- Lithium batteries to back up memory
- Recoverable over current protection
- Interface protection compliance meets FCC, CE

LED Indicators

The LEDs on the front panel are used to indicate power, alarm/relay status changes, and communication activities. *Figure 1-3* shows the LEDs and *Table 1-1* describes their functions.

Figure 1-3 Front Panel Diagnostic LEDs

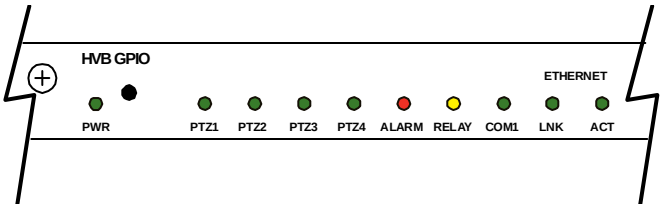


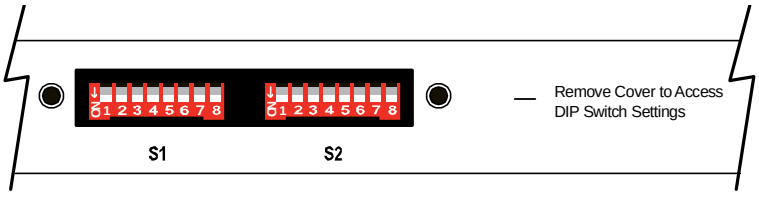
Table 1-1 Front Panel LED Function

LED	Function
PWR	Lit when the chassis is powered on. Flickers when the DIP switch status changes.
PTZ1	Flickers when valid data passes through the PTZ1 port.
PTZ2	Flickers when valid data passes through the PTZ2 port.
PTZ3	Flickers when valid data passes through the PTZ3 port.
PTZ4	Flickers when valid data passes through the PTZ4 port.
ALARM	Flickers when status changes on any of the alarm inputs.
RELAY	Flickers when any of the relays take action.
COM1	Flickers when valid data passes through the COM1 port.
Ethernet LINK	Flickers when data transfer is detected by the Ethernet.
Ethernet ACT	Flickers when connection is detected by the Ethernet.

DIP Switch Settings

The HVBGPIO has two DIP switches—S1 and S2—which are used to set up various operational parameters. These switches are accessible by removing the cover plate on the front panel (see *Figure 1-1*).

Figure 1-4 DIP Switch Settings on Front Panel



DIP Switch S1

Use S1 to set the address of the HVBGPIO.

Table 1-2 S1—HVBGPIO Address Setting

Position	Function	Description
B1-B8	Board Address	Valid range is 00000001–11111111(1–255). B1 is the LSB and B8 is the MSB.
Note	In VideoBloX mode, the valid range for the board address is 1 to 250. The top five addresses are reserved for the alarm concentrator. In MAXPRO-Net mode, the valid range is 1 to 255.	

DIP Switch S2

Use S2 to set various system parameters for the HVBGPIO.

Table 1-3 S2—HBGPIO System Status Parameter Settings

Position	Function	Description
B1	Work mode	0 = Slave mode 1 = Master mode
B2	IP Address reset	0->1 reset IP Address to the default value
B3 B4	COM1 Baud rate setting	B3 B4 Baud rate 0 0 9600 1 0 19200 0 1 57600 1 1 115200
B5	COM1 UART mode	0 = RS422 1 = RS232
B6	Configuration mode	0 = DIP Switch setting 1 = Web browser setting
B7	Cascade mode	0 = Cascade mode disable 1 = Cascade mode enable. **Note** This function is reserved. Please set to **0**.
B8	Extended mode	0 = Extended mode disable 1 = Extended mode enable

2

Web Browser

This chapter describes how to use the web browser provided to configure and upgrade the HVBGPIO through Ethernet. This method provides more powerful functions than simply configuring the DIP switches as described in *Chapter 1*.

General Operation

Logging On

To log on to the web browser:

1. In the Internet Explorer (IE) address bar, type in the **HVBGPIO URL**, then press **Enter**. The Login window displays (see *Figure 2-1*).

Note The default IP address is **192.168.1.9**.

You must be running Internet Explorer 6.0.0 or later on your PC.

Figure 2-1 HVBGPIO User Login

2. On the top right corner of the Login window, type in the user name and password, then click **Login**. The welcome page displays (see *Figure 2-2*).

Note The default user name is **Administrator** and the default password is **1234**, both case sensitive.

Figure 2-2 Welcome Window

Changing the Password

To change the password:

1. On the top right corner of the Welcome window, click **Change Password**. The Change Password window displays (see *Figure 2-3*).

Figure 2-3 Change Password Window

2. Type in the current password in the **Old Password** field.
3. Type in the new password in the **New Password** field, then retype the new password in the **Confirm New Password** field.
4. Click **Apply** to enable the new password. Click **Cancel** to continue using the old password.

Logging Off

To exit the system and return to the Login window, click **Logout** at the top right corner.

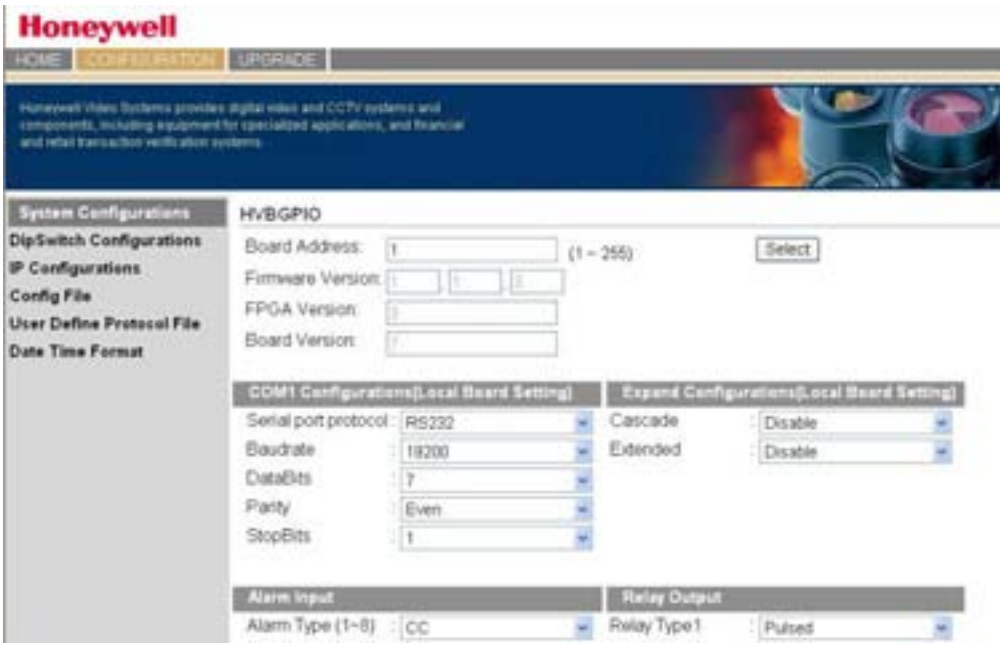
Configuration

Configuring the System

To configure various parameters of the HVBGPIO, alarm inputs, and PTZ control:

1. If you have not already done so, log on (see *Logging On*, page *19*).
2. On the **CONFIGURATION** tab, click **System Configurations** on the left pane. The System Configurations window displays (see *Figure 2-4*).

Figure 2-4 System Configurations Window



Note This page shows the firmware version. If you operate the HVBGPIO in Slave mode, only the version of the board itself displays.

In Master mode, you can select other board addresses to get the information of corresponding slave boards, and to configure their settings.

3. Change the values in the fields, as desired.
4. Click **Apply** to save the changes.

   Click **Default** to return the settings to the default values without saving your changes.

Modifying IP Configuration Settings

To change the IP configuration settings:

1. On the **CONFIGURATION** tab, click **IP Configurations** on the left pane. The IP Configurations window displays (see *Figure 2-5*).

Figure 2-5 IP Configurations Window

2. Modify the values of the IP Address, Subnet Mask, and Gateway fields, as desired.

Note The default network settings are:

IP Address: **192.168.1.9**
Subnet Mask: **255.255.255.0**
Gateway: **192.168.1.1**

---

3. Click **Apply** to save the changes.

   Click **Cancel** to cancel the current changes.

   Click **Default** to return the settings to the default values without saving your changes.

Note In the event you have forgotten the IP address, change switch S2.2 from OFF to **ON**. This resets the IP address to the default value.

Setting a User-Defined Protocol

If you wish to operate a PTZ device that uses a protocol that is not included, HVBGPIO provides an interface where you can define a protocol file. Follow the specific format provided in *Importing a Configuration File*, page *24* and *Figure 2-6* (they work similarly) to write out the PTZ protocols and upload the files. Then you can select your user-defined protocols in the relevant PTZ fields to operate your PTZ device(s).

Each PTZ port should have its own user-defined protocol file. The file used by port 1 will not be used by port 2. If you want this file to be used by both ports, it is recommended that you make two copies of the file and change the port value to 1 or 2, then upload the files. Similarly, if all four ports need the same file, then four separate user-defined protocol files need to be uploaded.

Note The Master board can NOT configure the file of Slave boards.

Figure 2-6 User Define Protocol File

Importing a Configuration File

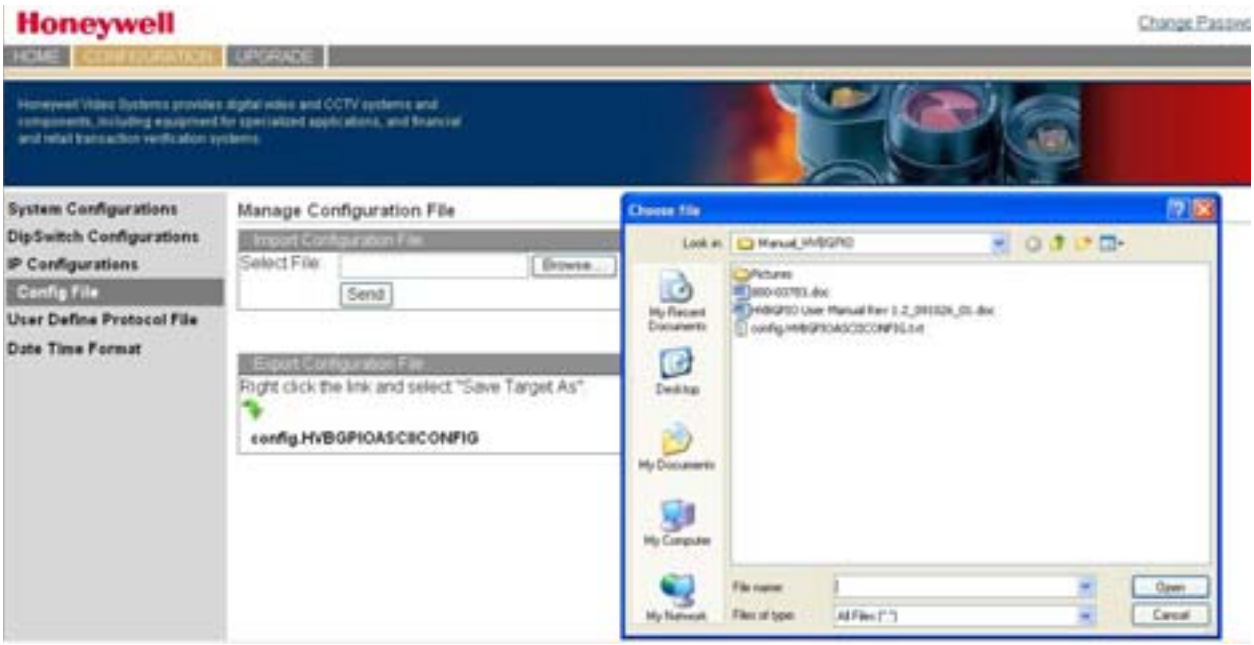
To import a configuration file:

1. On the **CONFIGURATION** tab, click **Config File** on the left pane. The Manage Configuration File window opens (see *Figure 2-7*).

Figure 2-7 Manage Configuration File Window

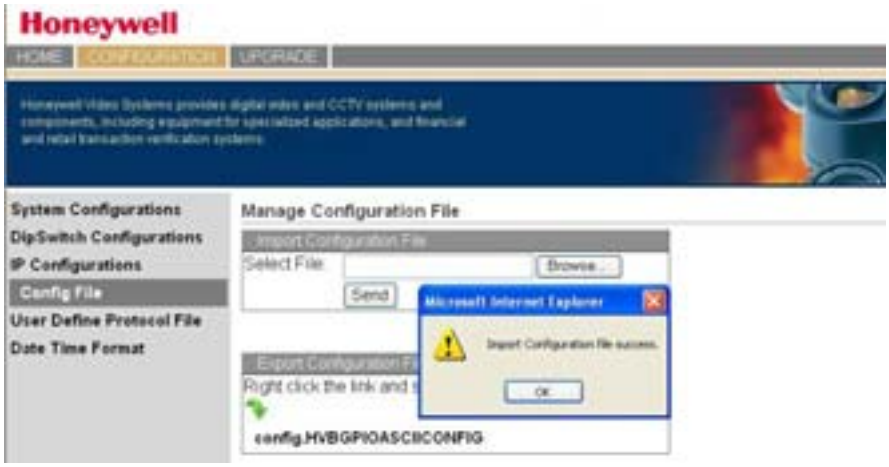
2. Click **Browse…**. The Choose File dialog opens (see *Figure 2-8*).
3. Select the configuration file, and then click **Open**. The address and the name of the file populate.

Figure 2-8 Choose File Dialog Box



4. Click **Send** to import the configuration file. The message `Import Configuration file success` indicates the file has been successfully imported.

Figure 2-9 Configuration File Successfully Imported

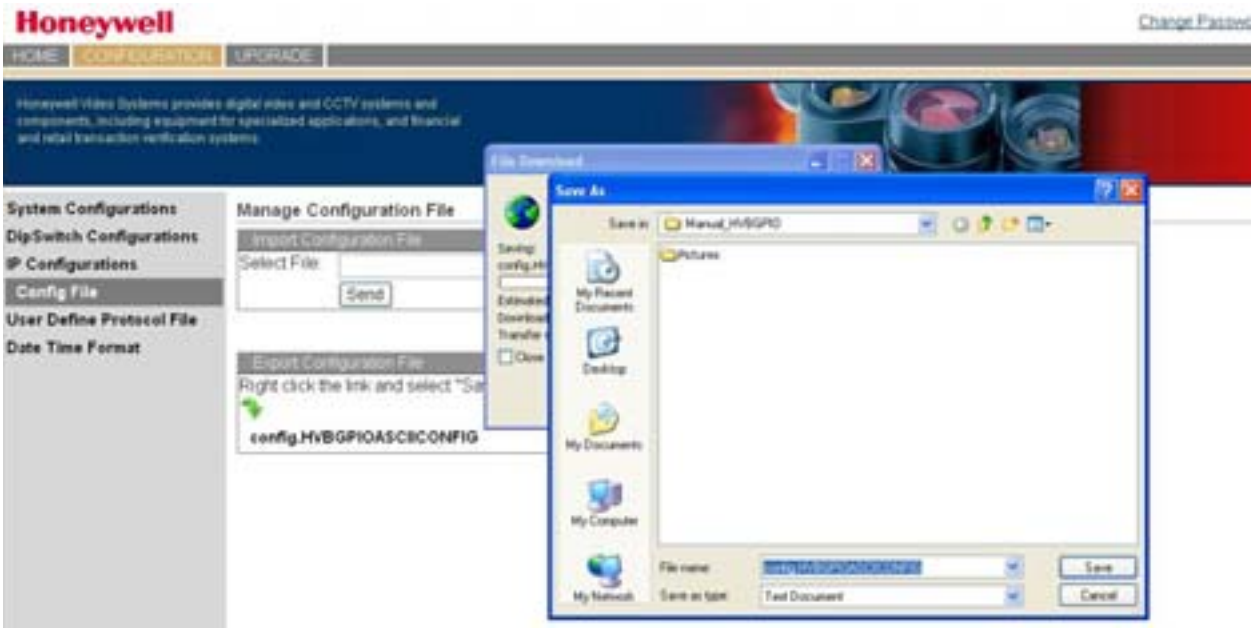


Exporting a Configuration File

To export a configuration file:

1. On the **CONFIGURATION** tab, in the **Export Configuration File** area, right-click **config.HVBGPIOASCIICONFIG**. See *Figure 2-8*.
2. Select **Save target as** from the drop-down list.

Figure 2-10 Configuration File Export



3. On the **Save As** dialog, navigate to the desired folder where you wish to save the configuration file.
4. Click **Save**. The configuration file is exported to your local computer.

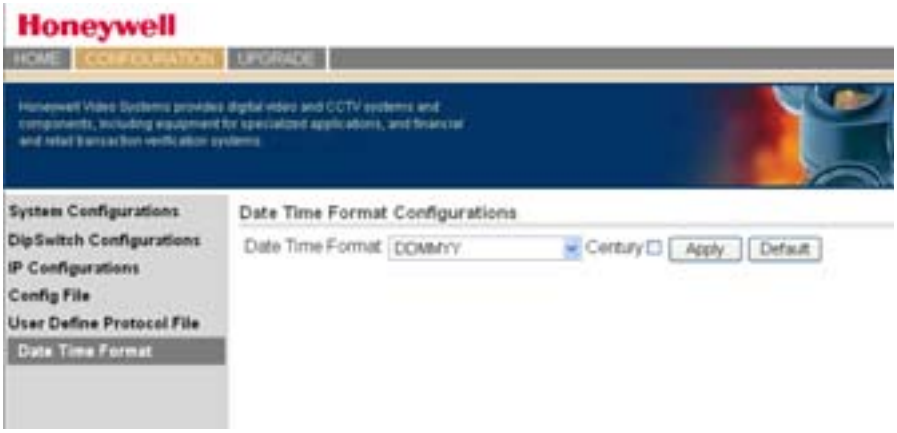
Setting the Date and Time Format

Note This function is only valid for the Master board.

To set the date and time format:

1. On the **CONFIGURATION** tab, click **Date Time Format** on the left panel. The Date Time Format Configurations window displays (see *Figure 2-11*).

Figure 2-11 Date Time Format Configurations Window



2. In the **Date Time Format** drop-down list, select the desired format (for example, DDMMYY).
3. Click **Apply** to save the changes.

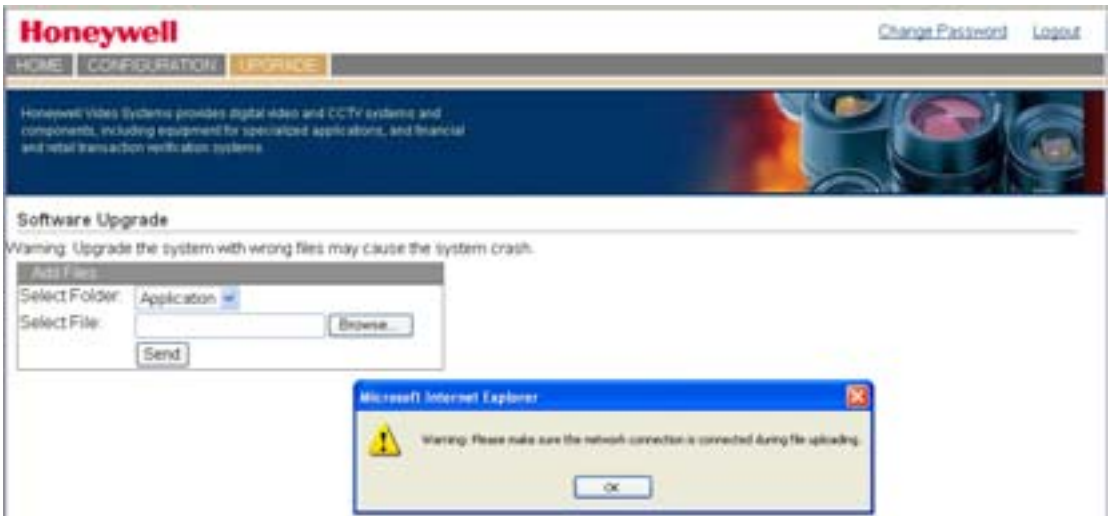
   Click **Default** to return the settings to the default values without saving your changes.

Firmware Upgrade

The HVBGPIO board contains a Flash memory that provides the convenience of upgrading firmware through the Internet. To upgrade the firmware:

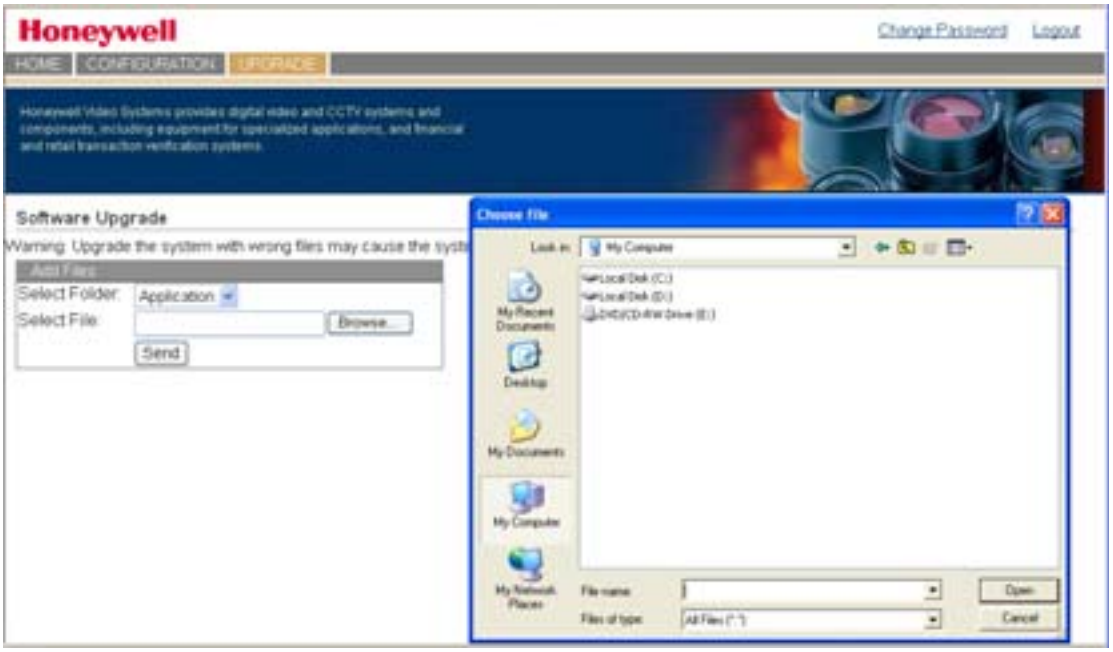
1. In the Internet Explorer address bar, type in the HVBGPIO URL, then press **Enter**.
2. Type in the user name and password, then click **Login**.
3. Select the **UPGRADE** tab. The Software Upgrade dialog box appears (see *Figure 2-12*).

Figure 2-12 Software Upgrade Dialog Box



4. In the **Select Folder** drop-down list, select one item: Application, FPGA, or KERNEL. Click **Browse**. A Choose File dialog box prompts you to select the relevant file.
5. Click **Open**.

Figure 2-13 Software Upgrade Choose File Dialog Box



6. Click **Send** to upgrade the file. A success message indicates the firmware has been successfully upgraded.

Note The system reboots automatically after the firmware upgrade has completed.

3

Alarm Inputs

This chapter explains the 24 alarm inputs. The alarm inputs can work in either CC or EOL modes. These modes can be configured on DIP switch SW3 or using the web browser.

Contact Closure or End-of-Line Resistor Modes

HVBGPIO can be set to either open/short circuit sensing or 2.2 kilohm EOL resistor sensing by either DIP switch or through the web browser.

CC Mode

When configured in CC mode, the HVBGPIO detects contact state changes according to the NO/NC setting (defined in the Alarm Input table in SETMAX or NETCFG).

EOL Mode

In the EOL mode, setting NC to SETMAX or NETCFG causes an alarm active when the alarm loop becomes either open or shirt circuit (unsealed). Conversely, in the NO mode, the alarm becomes active when the loop is in the sealed position.

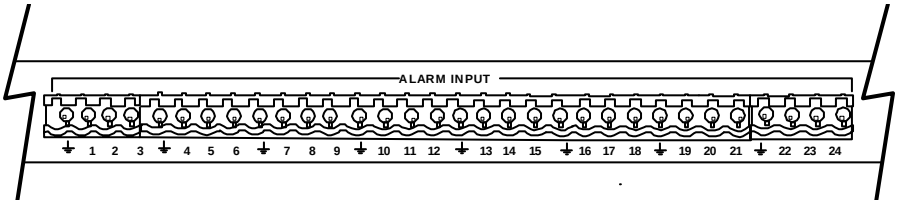
Sensing

Each input can be checked in approximately 1 ms. This means that even with all input circuits enabled, an alarm condition can be recognized in less than 24 ms. There is an alarm de-bounce period of 30 ms, so an alarm input has to stay unchanged for this period

before the alarm condition is reported. The LED indicator on the front panel (see *Figure 1-1*) indicates an alarm state change. The LED indicator shows an alarm state change, regardless of whether the input circuits are enabled or not.

Alarm Type Settings

Figure 3-1 Alarm Input Connectors



Setting the Alarm Type on the DIP Switch

Alarm type can be set through DIP switches by setting SW2.6 to **OFF**.

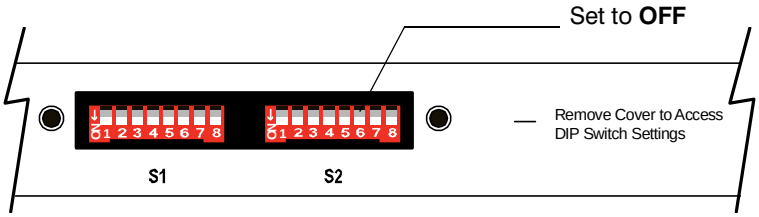


Table 3-1 Alarm Type Setting

SW3	Description	ON	OFF
2	CC, EOL of Input 1 to 8	EOL	CC
3	CC, EOL of Input 9 to 16	EOL	CC
4	CC, EOL of Input 17 to 24	EOL	CC

Setting the Alarm Type Using the Web Browser

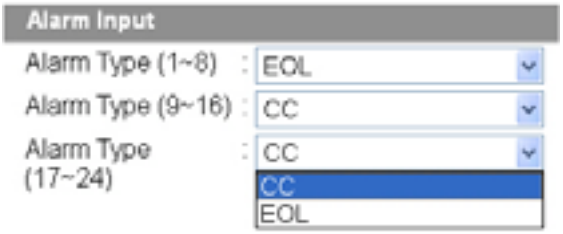
To set the alarm type using the web browser:

1. After logging on, click the **CONFIGURATION** tab, then click **System Configurations** on the left pane. The System Configuration window displays (see *Figure 2-4*).
2. In the **Alarm Input** field at the bottom (see *Figure 3-2*), select **EOL** or **CC** from the drop-down lists for each alarm input range (1 to 8, 9 to 16, and 17 to 24).

3. Click **Apply** to save the changes.

   Click **Default** to return the settings to the default values without saving your changes.

Figure 3-2 Alarm Input Type Setting



4

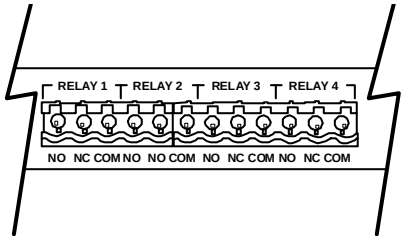
Relay Outputs

This chapter covers the four general-purpose relay outputs on the HVBGPIO. Each output circuit provides two kinds of relay contact closures: normally open and normally closed. All output circuits are isolated from each other. The relay contact is completely floating with respect to earth.

An output circuit tolerates an applied open-circuit voltage of 50 volts and a closed-circuit loop current not exceeding 1 Amp. As it is a true switch contact, the HVBGPIO is suitable for switching AC supplies. Since all four output circuits are isolated from each other, every polarity and/or reference supply rail can be used by all of the output circuits on the same HVBGPIO.

One LED indicator on the front panel (see *Figure 1-1*) shows all of the output status changes.

Figure 4-1 Relay Output Connectors



Constantly and Pulsed

You can set the relay outputs to be either energized **Constantly** or **Pulsed**. In Pulsed mode, the output energizes momentarily. In Constantly mode, the output does not energize unless it is set to de-energize by the MAXPRO-Net/NETCFG.

Relay Type Setting

Setting the Relay Type on the DIP Switch

Relay type can be set on DIP switches by setting S2.6 to **OFF**.

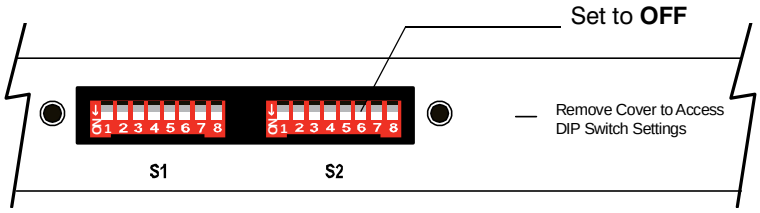


Table 4-1 Relay Type Setting

SW3	Description	ON	OFF
5	Type of Relay 1	Constantly	Pulsed
6	Type of Relay 2	Constantly	Pulsed
7	Type of Relay 3	Constantly	Pulsed
8	Type of Relay 4	Constantly	Pulsed

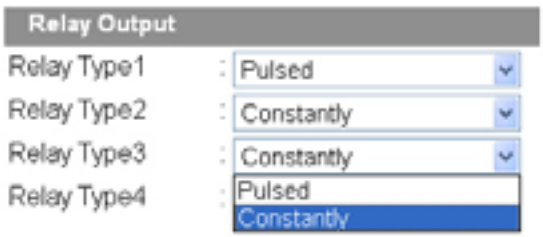
Setting the Relay Type Using the Web Browser

To set the relay type using the web browser:

1. After logging on, click the **CONFIGURATION** tab, then click **System Configurations** on the left pane. The System Configurations window displays (see *Figure 2-4*).
2. In the **Relay Output** field at the bottom (see *Figure 4-2*), select either **Pulsed** or **Constantly** from the drop-down lists for each of the four relays.
3. Click **Apply** to save the changes.

   Click **Default** to return the settings to the default values without saving your changes.

Figure 4-2 Relay Output Type Setting



5

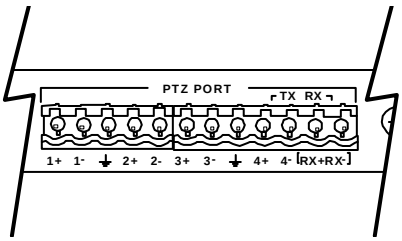
UART Ports

This chapter covers the four UART ports which can send/receive serial command protocols to various protocols compatible with equipment from manufacturers other than Honeywell. For ports 1 to 3, only RS485 is currently implemented. Port 4 can support RS232, RS422, and RS485. Manchester encoding is reserved for SW12, which should be left at the bottom side.

HVBGPIO UART ports can be configured to operate in two modes:

- **Pan/Tilt/Zoom (PTZ) mode**: The PTZ control messages are received on the communications port. Depending on the DIP switch settings, these commands are then translated to serial data packets, which are compatible with other manufacturer's PTZ telemetry receivers or integrated domes.
- **Device Control mode**: Generic device control commands are received and translated into data packets, which are compatible with other manufacturer's digital video recorders (DVRs), multiplexers, and so on.

Figure 5-1 UART—PTZ Port Connectors



Setting the UART Port Mode

Table 5-1 lists the HVBGPIO UART mode settings.

Table 5-1 UART Mode Setting

Position	Description	ON	OFF
SW4.2	Port 1 Work Mode	Device Control	PTZ
SW6.2	Port 2 Work Mode	Device Control	PTZ
SW8.2	Port 3 Work Mode	Device Control	PTZ
SW10.2	Port 4 Work Mode	Device Control	PTZ

There is one bit for each port to select the UART setting, including Stop Bit Length, Data Bit Length, Parity Check mode, Baud Rate, and Interface Standard. The detailed settings are listed below.

Selecting the UART Stop Bit Length

Table 5-2 lists the HVBGPIO UART Stop Bit Length settings.

Table 5-2 UART Stop Bit Length Setting

Position	Description	ON	OFF
SW5.1	Port 1 Stop Bit Length	2 bit	1 bit
SW7.1	Port 2 Stop Bit Length	2 bit	1 bit
SW9.1	Port 3 Stop Bit Length	2 bit	1 bit
SW11.1	Port 4 Stop Bit Length	2 bit	1 bit

Selecting the UART Data Bit Length

Table 5-3 lists the HVBGPIO UART Data Bit Length settings.

Table 5-3 UART Data Bit Length Setting

Position	Description	ON	OFF
SW5.2	Port 1 Data Bit Length	7 bit	8 bit
SW7.2	Port 2 Data Bit Length	7 bit	8 bit
SW9.2	Port 3 Data Bit Length	7 bit	8 bit
SW11.2	Port 4 Data Bit Length	7 bit	8 bit

Selecting the UART Parity Check Mode

Table 5-4 lists the HVBGPIO UART Parity Check settings.

Table 5-4 UART Parity Check Setting

Position	None	Even	Odd
Port 1 SW5	B3=0, B4=0	B3=1, B4=0	B3=0, B4=1
Port 2 SW7			
Port 3 SW9			
Port 4 SW11			

Selecting the UART Baud Rate

Table 5-5 lists the HVBGPIO UART Baud Rate settings.

Table 5-5 UART Baud Rate Setting

Position	9600	19200	2400	4800
Port 1 SW5	B5=0, B6=0	B5=1, B6=0	B5=0, B6=1	B5=1, B6=1
Port 2 SW7				
Port 3 SW9				
Port 4 SW11				

Selecting the UART Interface Standard

Table 5-6 lists the HVBGPIO UART Interface Standard settings.

Table 5-6 UART Interface Standard Setting

Protocol	RS485	RS422	RS232
Port 1	SW5.7=0, SW5.8=0	X	X
Port 2	SW7.7=0, SW7.8=0	X	X
Port 3	SW9.7=0, SW9.8=0	X	X
Port 4	SW11.7=0, SW11.8=0	SW11.7=1, SW11.8=0	SW11.7=1, SW11.8=1

Configuring the UART Settings Using the Web Browser

To change the UART settings using the web browser:

1. After logging on, click the **CONFIGURATION** tab, then click **System Configurations** on the left pane. The System Configurations window displays (see *Figure 2-4*).
2. Select **PTZ Control**. The PTZ Control window displays (see *Figure 5-2*).

Figure 5-2 UART Port Setting Window

3. Modify the parameters according to your requirements.

Note For ports 1 to 3, only RS485 is currently implemented. Port 4 can support RS232, RS422, and RS485.

4. Click **Apply** to save the changes.

   Click **Default** to return the settings to the default values without saving your changes.

Terminator Resistor

The HVBGPIO provides 120 Ohm terminating resistor selection on the board. Users can simply plug in 120 Ohm jumpers.

Table 5-7 Terminating Resistor Setting

Position	Description	120 Ohm	NO 120 Ohm
P1	For Port 1 RS485	ON	OFF
P2	For Port 2 RS485	ON	OFF
P3	For Port 3 RS485	ON	OFF
P4	For Port 4 RS485/RS422 TxD	ON	OFF
P5	For Port 4 RS422 RxD	ON	OFF

6

Device Control Mode

This chapter explains Device Control mode. In Device Control mode, generic device control commands are received and translated into data packets compatible with non-Honeywell manufacturers' DVRs, multiplexers, and so on.

Device Control Settings

To control your device through the HVBGPIO:

1. From your device CPU, select Device Control mode, *Figure 6-1* shows an example of setting HVBGPIO control from a VideoBloX matrix switcher.
2. Set the Device Type according to your CFG / NETCFG PC software. The range of device type is 1 to 32 which responds to setting S5-S4-S3-S2-S1 (SW4, 6, 8, 10) from 00000 to 11111.

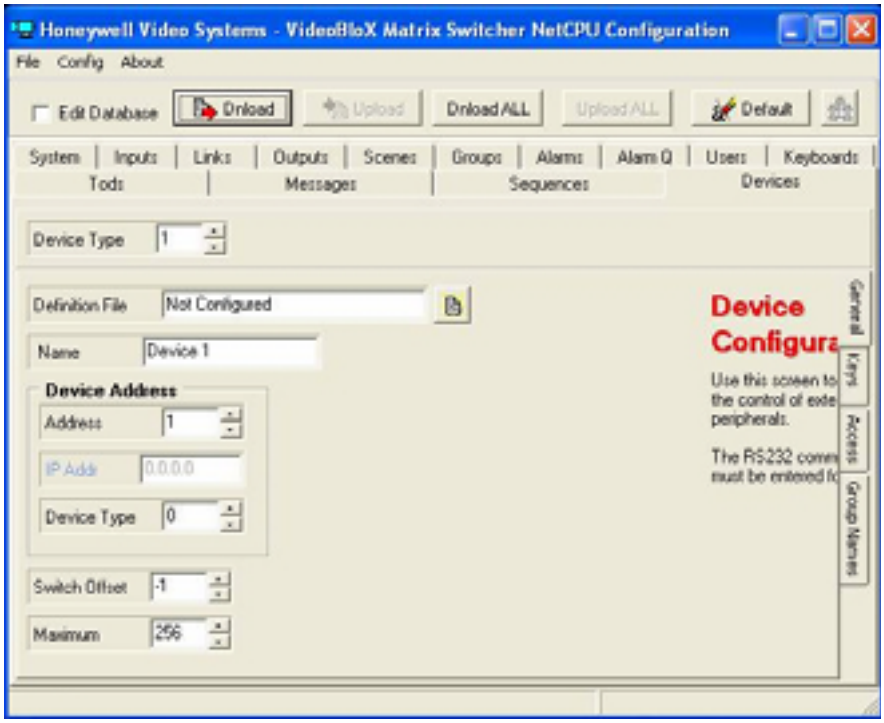
Example: To set device type 1 in CFG software, change S5-S4-S3-S2-S1 to 00000.

In MAXPRONET mode, the usage of device control is straightforward. All the commands received from MAXPRO-Net are passed to all the four output ports.

In NETCFG mode, the GPIO card filters out the commands when the device type is different than the device type set on the card.

Figure 6-1 shows an example in NETCFG mode. On the HVBGPIO, set port 1 to type 1 and port 2 to type 2. If a type 1 command is received by the GPIO card, the GPIO card transfers the command to port 1; not port 2.

Figure 6-1 Device Type Setting (VideoBloX)



7

PTZ Operation

This chapter covers Pan/Tilt/Zoom (PTZ) operation. In PTZ mode, the PTZ control messages are received on the communications port. Depending on the DIP switch settings, these commands are then translated to serial data packets which are compatible with non-Honeywell manufacturer's PTZ telemetry receivers or integrated domes.

Note IntelliBus™ protocol in RS485 mode is not supported by Port 4. JVC protocol is reserved.

PTZ Protocol Selection

DIP switches S4 to 10 are used to set the protocol for PTZs 1 to 4.

Table 7-1 PTZ Protocol Setting

PTZ Protocol	S4, S6, S8, S10	B8	B7	B6	B5	B4	B3
Pelco D	S4 for PTZ1 S6 for PTZ2 S8 for PTZ3 S10 for PTZ4	OFF	OFF	OFF	OFF	OFF	OFF
Pelco P		OFF	OFF	OFF	OFF	OFF	ON
Diamond		OFF	OFF	OFF	OFF	ON	OFF
JVC		OFF	OFF	OFF	OFF	ON	ON
VCL		OFF	OFF	OFF	ON	OFF	OFF
Panasonic		OFF	OFF	OFF	ON	OFF	ON
AD		OFF	OFF	OFF	ON	ON	OFF
IntelliBus™		OFF	OFF	OFF	ON	ON	ON
User-defined		OFF	OFF	ON	OFF	OFF	OFF

PTZ Aux Function Usage

Using the extended Preshot mapping concept, HVBGPIO has the ability to control PTZ devices. Currently we support nine different PTZ protocols. These PTZ protocols have some special functions such as Tour Programming and Menu Call. However, the special functions can vary between different systems and protocols. The extended Preshot mapping concept uses one standard method to map these functions so that it is the same from any system or any protocol. The new method maps Preshot Calls or Sets to call these functions. The Preshot range is from 101 to 198. *Table 7-2* shows a brief overview of the Preshot mapping. It defines the united Preshot Call function and Set function.

Table 7-2 Common Preshot Mapping

Common PTZ Call / Set Function Preshot Mapping					
No.	**Call Function**	**Set Function**	**No.**	**Call Function**	**Set Function**
101	Menu On	Digit or letter input	131	Aux 1 On	Aux 1 Off
102	Enter	Escape	132	Aux 2 On	Aux 2 Off
103	Left	Right	133	Aux 3 On	Aux 3 Off
104	Down	Up	141	Run Learning Tour 1	Program Learning Tour 1
109	Camera Reset	Power Reset	142	Run Learning Tour 2	Program Learning Tour 2
110	Error Display On	Error Display Off	143	Run Learning Tour 3	Program Learning Tour 3
111	Auto Iris On	Auto Iris Off	144	Run Learning Tour 4	Program Learning Tour 4
112	Auto Focus On	Auto Focus Off	145	End Learning Tour	Function Off 45
113	Digital Zoom On	Digital Zoom Off	146	Run Preshot Tour 1	Program Preshot Tour 1
114	BW Mode	Color Mode	147	Run Preshot Tour 2	Program Preshot Tour 2
115	Auto BW/Color	Function Off 15	148	Run Preshot Tour 3	Program Preshot Tour 3
116	BLC On	BLC Off	149	Run Preshot Tour 4	Program Preshot Tour 4
117	Freeze On	Freeze Off	150	Function On 50	Program Tour Speed
119	Flashback	180 Flip	151	Function On 51	Program Tour Dwell
120	Store Alarm Pos 1	Recall Alarm Pos 1	152	Function On 52	Program Tour Point
121	Store Alarm Pos 2	Recall Alarm Pos 2	154	Function On 53	Program Autopan Start
122	Sync Early	Sync Later	155	Function On 55	Program Autopan End
125	Function On 25	Program Camera Home Pos	161	Clear Privacy Zone	Program Privacy Zone
126	Function On 26	Program Camera Home Tour (mimic)	1xx	Function On xx	Function Off xx
127	Function On 27	Program Camera Home Tour (Preshot)			

Operation Method

The operation method is as listed below.

<MAX system>

The user sends a recall Preshot 99 command; then shortly afterwards sends a Recall Preshot XX command which in turn will represent Recall 1XX.

The user sends a Recall Preshot 99 command; then shortly afterwards sends a Store Preshot XX command which in turn will represent Store 1XX.

When options are selected using a digit or letter, the user sends a Recall Preshot 99; then shortly afterwards sends a Store Preshot 1 and then sends a recall preshot corresponding digit (0−9) or ASCII code (decimal).

<VB system>

The user sends a Recall Preshot 1XX command which in turn represents Recall 1XX command.

The user sends a Store Preshot 1XX commandwhich in turn represents Store 1XX command.

The user sends a Store Preshot 101 command; and then shortly afterwards sends a Recall Preshot commandcorresponding digit (0−9) or ASCII code (decimal).

Example:

To enable MenuOn in a VideoBloX system, simply press these keys on the keyboard: **recall-1-0-1-enter**.

In a MAXPRO-Net system, press **recall-9-9-recall-1-enter**.

To clear the menu in a VideoBloX system, use the **ESCAPE** command (store 102): press **store-1-0-2-enter**.

In a MAXPRO-Net system, press **recall-9-9-store-2-enter**.

Note In a MAXPRO-Net system, the series of keys should be pressed in sequence fairly quickly. If there is a long delay between keystrokes, the command will be resolved to Recall 99 and Store 1. In some applications, you need to type a digit (0 to 9) or letter. For example, if you should type **S** to save your setting, you can press **Store 101**, then **Recall 83** (83 is the ASCII code of S).

As different PTZs could be implemented by different functions, the following tables list the supported function charts for each supported PTZ protocol.

Table 7-3 Pelco D PTZ Preshot Mapping

Pelco D PTZ Call / Set Function Preshot Mapping

No.	Call Function	Set Function	No.	Call Function	Set Function
109	Camera Reset	Power Reset	132	Aux 2 On	Aux 2 Off
111	Auto Iris On	Auto Iris Off	133	Aux 3 On	Aux 3 Off
112	Auto Focus On	Auto Focus Off	141	Run Learning Tour 1	Program Learning Tour 1
116	BLC On	BLC Off	142	Run Learning Tour 2	Program Learning Tour 2
119		180 Flip	143	Run Learning Tour 3	Program Learning Tour 3
131	Aux 1 On	Aux 1 Off	145	End Learning Tour	

Table 7-4 Diamond PTZ Preshot Mapping

Diamond PTZ Call / Set Function Preshot Mapping

No.	Call Function	Set Function	No.	Call Function	Set Function
101	Menu On	Digit or letter input	141	Run Learning Tour 1	Program Learning Tour 1
102	Enter	Escape	142	Run Learning Tour 2	Program Learning Tour 2
103			143	Run Learning Tour 3	Program Learning Tour 3
104			146	Run Preshot Tour 1	Program Preshot Tour 1
109	Camera reset		147	Run Preshot Tour 2	
116	BLC On	BLC Off	148	Run Preshot Tour 3	
117	Freeze On	Freeze Off	149	Run Preshot Tour 4	
119	Flashback				

Table 7-5 VCL PTZ Preshot Mapping

VCL PTZ Call / Set Function Preshot Mapping

No.	Call Function	Set Function	No.	Call Function	Set Function
109	Camera Reset	Power Reset	132	Aux 2 On	Aux 2 Off
111	Auto Iris On	Auto Iris Off	133	Aux 3 On	Aux 3 Off
112	Auto Focus On	Auto Focus Off	146	Run Preshot Tour 1	
113	Digital Zoom On	Digital Zoom Off	147	Run Preshot Tour 2	
119		180 Flip	148	Run Preshot Tour 3	

Table 7-5 VCL PTZ Preshot Mapping

VCL PTZ Call / Set Function Preshot Mapping					
No.	**Call Function**	**Set Function**	**No.**	**Call Function**	**Set Function**
122	Sync Early	Sync Later	149	Run Preshot Tour 4	
125		Program Camera Home Postion	161	Clear Privacy Zone	Program Privacy Zone
131	Aux 1 On	Aux 1 Off			

Table 7-6 IntelliBus PTZ Preshot Mapping

IntelliBus PTZ Call / Set Function Preshot Mapping					
No.	**Call Func**	**Set Func**	**No.**	**Call Func**	**Set Func**
109	Camera Reset	Power Reset	141	Run Learning Tour 1	Program Learning Tour 1
111	Auto Iris On	Auto Iris Off	142	Run Learning Tour 2	Program Learning Tour 2
112	Auto Focus On	Auto Focus Off	143	Run Learning Tour 3	Program Learning Tour 3
113	Digital Zoom On	Digital Zoom Off	144	Run Learning Tour 4	Program Learning Tour 4
114	BW Mode	Color Mode	145	End Learning Tour	
116	BLC On	BLC Off			
117	Freeze On	Freeze Off			

User-Defined Protocol Format

HVBGPIO provides a user-defined protocol format. This allows a user to operate some other third-party protocol PTZs. This section provides an introduction to the user-defined protocol format.

= Is an evaluation symbol; the expression or value should follow it in turn. No blank space is allowed between = and the expression/value.

<> Is used to mark a system parameter. The parameter must immediately follow the identifier. Both lowercase and capital letters are acceptable.

The configuration file should use *.udp* as the file extension (for example, *PelcoD.udp* or *Diamond.udp*). The maximum file size for the configuration file size is 90 kB so be careful not to add too many comments to the file.

The identifier list is as follows:

A. PTZ port setting. This item is required to locate the PTZ port.

<Port>=1.2.3.4

Example: If this protocol is desired to be used on PTZ port 3, then write the identifier as <Port>=3

:

B. Common command. These items are also required to define the common command format.

1. Move command
   <MoveRight>,<MoveLeft>,<MoveUp>,<MoveDown>
2. Zoom command
   <ZoomIn>,<ZoomOut>
3. Focus command
   <FocusFar>,<FocusNear>
4. Iris command
   <IrisOpen>,<IrisClose>
5. Preset command
   <ProgramPreset>,<GotoPreset>
6. Stop command
   <StopMoveX>,<StopMoveY>
   <FocusStop>,<ZoomStop>,<IrisStop>

Example: If we are coding Move Left command, follow this format:
<MoveLeft>=/x00/xII/xSS/x80/x80/xKK

:

C. Special command. These items are optional to define the special command format.

1. <Init>
2. <SetCamerid>
3. <ProgramPreset100>,<GotoPreset100>
   to
   <ProgramPreset198>,<GotoPreset198>

:

D. Environmental parameter. These items are also required to define environmental parameters. The default values are:

1. <MinCameraId> 1
2. <MaxCameraId> 255
3. <AllCameraId> 0
4. <MinPreset> 1
5. <MaxPreset> 255
6. <MinLeftSpeed> 1
7. <MaxLeftSpeed> 127
8. <MinRightSpeed> 1
9. <MaxRightSpeed> 127
10. <MinUpSpeed> 1
11. <MaxUpSpeed> 127
12. <MinDownSpeed> 1
13. <MaxDownSpeed> 127
14. <MinZoomInSpeed> 1
15. <MaxZoomInSpeed> 127
16. <MinZoomOutSpeed> 1
17. <MaxZoomOutSpeed> 127

Also you should use some element lists. The list should include some changeable elements as defined below and unchangeable values such as 00 to FF. Each element has a head "\x" (the x should be lowercase). The element should be a hex value. There are five special elements with specific meanings.

1. S The Camera **S**peed
2. N The Preset **N**umber
3. i The Camera **I**D
4. K Will be replaced with a calculated chec**K**sum
5. X Will be replaced with a calculated **X**or checksum
6. U The AUX function parameter. This parameter can only appear in <ProgramPreset101><ProramPreset119>. It will be replaced with a digit and letter.
7. Y Will be replaced with a calculated checksum (not including the command head)
8. W Will be replaced with a calculated **X**or checksum (not including the command head)

Example: If the camera, speed, and checksum are involved in the command, then write:

<MoveLeft>=\x00\xII\xSS\x80\x80\xKK

Example of a Typical User-Defined Protocol

One entire example is provided for reference.

```
;=======================
Pelco D
;=======================



<port>=1
<MinCameraId>=1
<MaxCameraId>=255
<AllCameraId>=255
<MinPreset>=1
<MaxPreset>=255
<MinLeftSpeed>=1
<MaxLeftSpeed>=255
<MinRightSpeed>=1
<MaxRightSpeed>=255
<MinUpSpeed>=1
<MaxUpSpeed>=255
<MinDownSpeed>=1
<MaxDownSpeed>=255
<MinZoomInSpeed>=1
<MaxZoomInSpeed>=255
<MinZoomOutSpeed>=1
<MaxZoomOutSpeed>=255



<MoveLeft>=\xFF\xII\x00\x04\xSS\x00\xYY
<MoveRight>=\xFF\xII\x00\x02\xSS\x00\xYY
<MoveDown>=\xFF\xII\x00\x10\x00\xSS\xYY
<MoveUp>=\xFF\xII\x00\x08\x00\xSS\xYY
<ZoomIn>=\xFF\xII\x00\x40\x00\x00\xYY
<ZoomOut>=\xFF\xII\x00\x20\x00\x00\xYY
<FocusFar>=\xFF\xII\x00\x80\x00\x00\xYY
<FocusNear>=\xFF\xII\x01\x00\x00\x00\xYY
<IrisOpen>=\xFF\xII\x02\x00\x00\x00\xYY
<IrisClose>=\xFF\xII\x04\x00\x00\x00\xYY
<ProgramPrest>=\xFF\xII\x00\x03/x00/xNN/xYY
<GotoPreset>=\xFF\xII\x00\x07\x00\xNN\xYY
<StopMoveX>=\xFF\xII\x00\x00\x00\x00\xYY
<StopMoveY>=\xFF\xII\x00\x00\x00\x00\xYY
<FocusStop>=\xFF\xII\x00\x00\x00\x00\xYY
<ZoomStop>=\xFF\xII\x00\x00\x00\x00\xYY
<IrisStop>=\xFF\xII\x00\x00\x00\x00\xYY
```

<programPreset109>=\xFF\xII\x00\x0F\x00\x00\xYY
<gotopreset109>=\xFF\xII\x00\x29\x00\x00\xYY
<programPreset111>=\xFF\xII\x00\x2D\x00\x02\xYY
<gotopreset111>=\xFF\xII\x00\x2D\x00\x01\xYY
<programPreset112>=\xFF\xII\x00\x2B\x00\x02\xYY
<gotopreset112>=\xFF\xII\x00\x2Bx00\x01\xYY
<programPreset116>=\xFF\xII\x00\x31\x00\x02\xYY
<gotopreset116>=\xFF\xII\x00\x31\x00\x01\xYY
<programPreset119>=\xFF\xII\x00\x07\x00\x21\xYY
<programPreset131>=\xFF\xII\x00\x0B\x00\x01\xYY
<gotopreset131>=\xFF\xII\x00\x09\x00\x01\xYY
<programPreset132>=\xFF\xII\x00\x0B\x00\x02\xYY
<gotopreset132>=\xFF\xII\x00\x09\x00\x02\xYY
<programPreset133>=\xFF\xII\x00\x0B\x00\x03\xYY
<gotopreset133>=\xFF\xII\x00\x09\x00\x03\xYY
<programPreset141>=\xFF\xII\x00\x1F\x00\x01\xYY
<gotopreset141>=\xFF\xII\x00\x23\x00\x01\xYY
<programPreset142>=\xFF\xII\x00\x1F\x00\x02\xYY
<gotopreset142>=\xFF\xII\x00\x23\x00\x02\xYY
<programPreset143>=\xFF\xII\x00\x1F\x00\x03\xYY
<gotopreset143>=\xFF\xII\x00\x23\x00\x03\xYY
<gotopreset145>=\xFF\xII\x00\x21\x00\x00\xYY

A

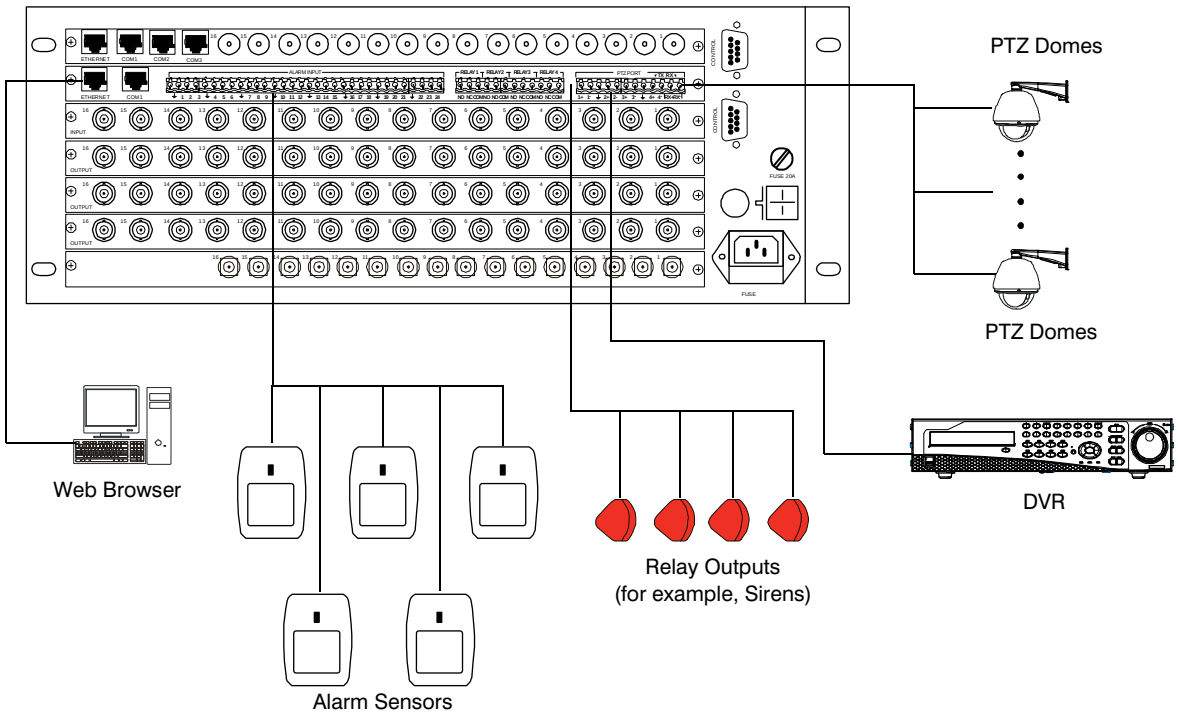
Typical Applications

This appendix provides examples of two typical system applications: when HVBGPIO is used in VideoBloX mode and when it is used with a MAXPRO-Net system.

VideoBloX System Application

When used in VideoBloX mode, the HVBGPIO should be set to Slave mode. It can receive Bossware protocol from the VideoBloX chassis backplane. One HVBNET16CPU is required as the Master controller. A typical application is shown in *Figure A-1*. Users can operate a keyboard to control PTZ and DVR devices, and to set alarm sequences to control alarm inputs and relay outputs. Users can also upgrade and configure the VideoBloXx system using the web browser.

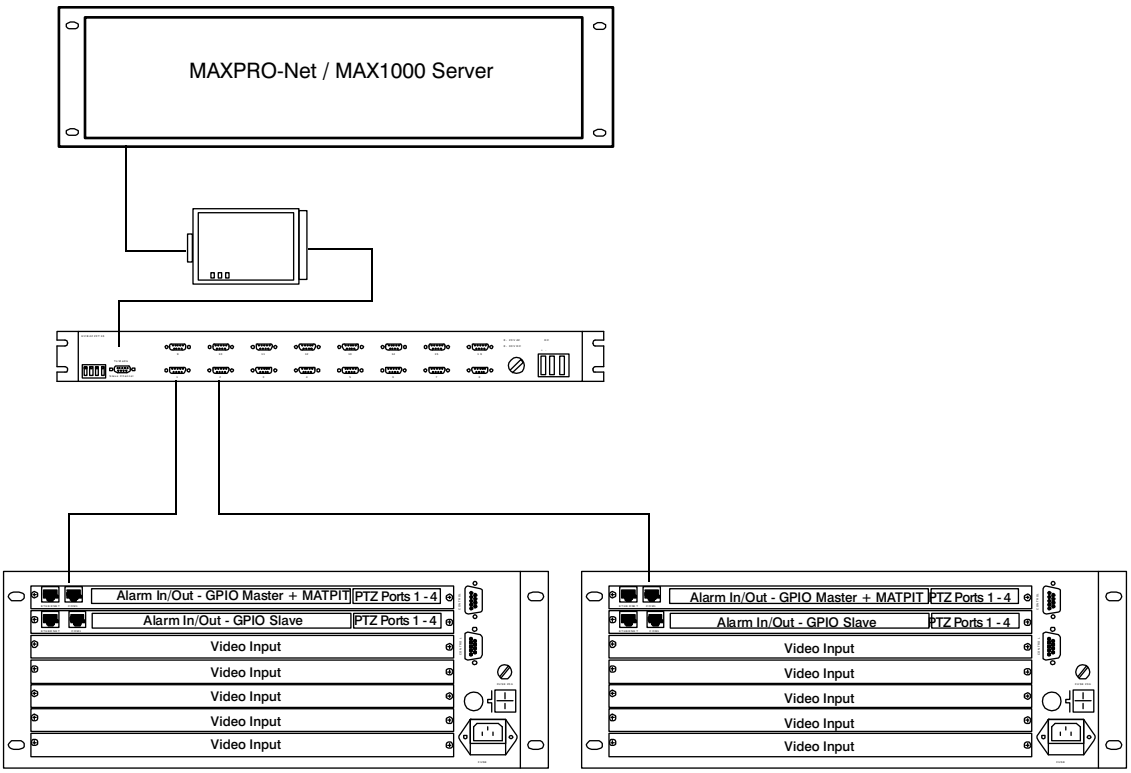
Figure A-1 HVBGPIO Typical Application with VideoBloX



MAXPRO-Net Application

The HVBGPIO can also be used with the MAXPRO-Net system. You can either connect the MAXPRO-Net RS232 serial port directly to the HVBGPIO RJ45 serial port, or use an HVB422FT16 extender to extend the serial port to multiple chassis. In this mode, the principal HVBGPIO connected to the MAXPRO-Net should be set to Master mode and other HVBGPIO boards, which get commands from the VideoBloX chassis backplane, should be set to Slave mode.

Figure A-2 HVBGPIO Typical Application with MAXPRO-Net



The RJ45 COM1 port on the rear panel (p/n 200-0186-E) is defined in *Table A-1*.

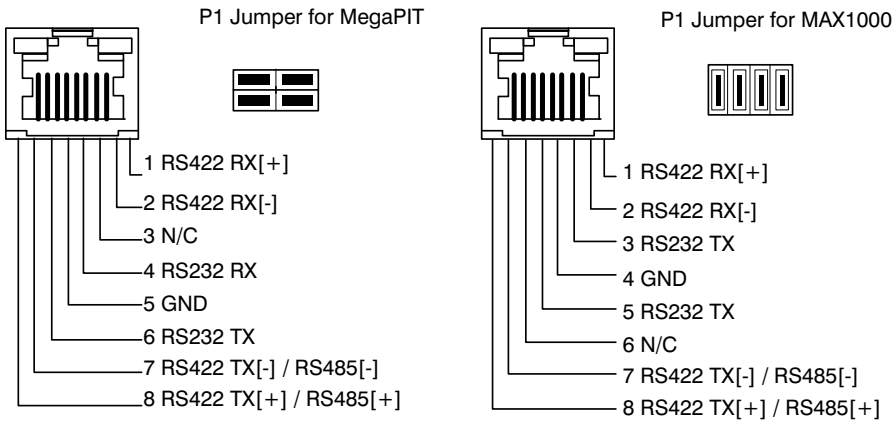
Table A-1 RJ45 COM1 Pin-Out Definitions

Pin	Set P1 Jumper for MegaPit	Set P1 Jumper for MAX1000
1	RS422 RX[+]	RS422 RX[+]
2	RS422 RX[-]	RS422 RX[-]
3	NC	RS232TX
4	RS232 RX	GND
5	GND	RS232 RX

Table A-1 RJ45 COM1 Pin-Out Definitions

Pin	Set P1 Jumper for MegaPit	Set P1 Jumper for MAX1000
6	RS232 TX	NC
7	RS422 TX[-] / RS485[-]	RS422 TX[-] / RS485[-]
8	RS422 TX[+] / RS485[+]	RS422 TX[+] / RS485[+]

Figure A-3 HVBGPIO RJ45 UART Pin-Outs



B

Sample Configuration

This appendix provides a sample configuration of how to operate the HVBGPIO in a VideoBloX system.

System Requirements

For this system, you should have the following requirements:

- A PC with HVBNETCFG software installed
- An HVBNET16CPU connection board
- An HVBM64 card
- An HVBGPIO board
- A PTZ dome
- A keyboard
- Appropriate cabling

Connections

Make the system connections as follows:

1. Connect the UTP wire from the HVBNET16CPU to the PC.
2. Install the NETCFG software on the PC.
3. Connect the PTZ dome to one of the PTZ ports on the HVBGPIO through RS485.
4. Set the PTZ protocol setting using DIP switch S4
   (see *PTZ Protocol Selection*, page *43*).

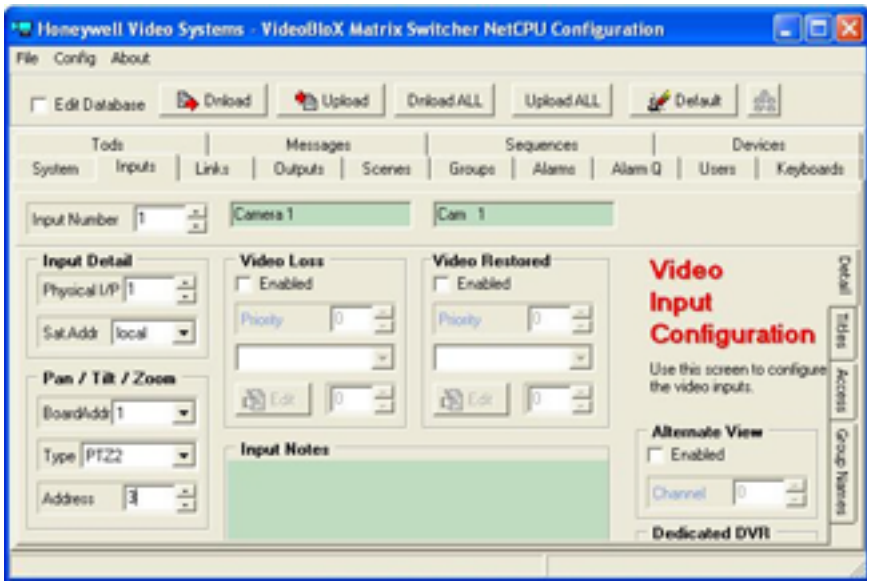
Configuration

In this example, the PTZ dome is connected to UART Port 2 of the HVBGPIO, Address 1 and the PTZ address is 3. The video signal of the PTZ dome is connected to Input 1.

Next, configure the corresponding settings in NETCFG:

1. Launch **NETCFG**.
2. Select the **Inputs** tab.

Figure B-1 PTZ Settings in NETCFG



3. In the **Input Number** field, select **1**.
4. In the **Pan** / **Tilt** / **Zoom** area:
   a. From the **BoardAddr** drop-down list, select **1**.
   b. From the **Type** drop-down list, select **PTZ2**.
   c. From the **Address** field, select **3**.

Now you can use the keyboard to operate the PTZ.

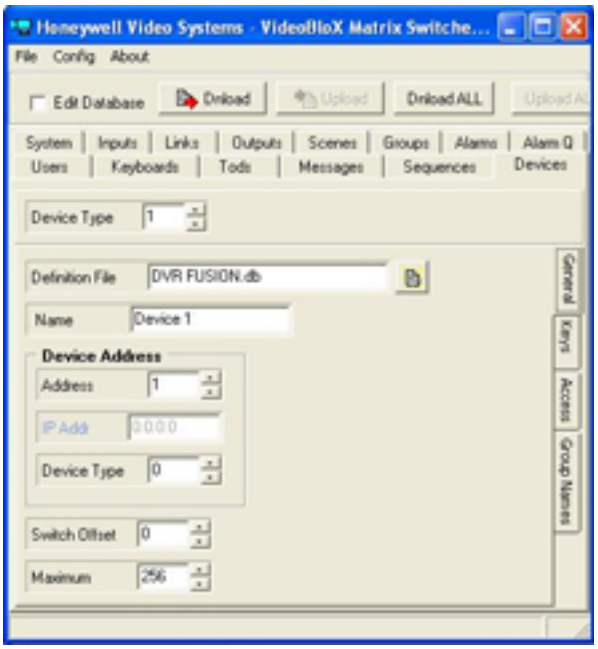
Device Settings

To configure device control:

1. Launch **NETCFG**.
2. Select the **Devices** tab.
3. In the **Device Type** field, select the device type.

4. Select the definition files and device addresses appropriate to your installation. *Figure B-2* shows typical device settings for a VideoBloX system.

Figure B-2 Device Settings in NETCFG

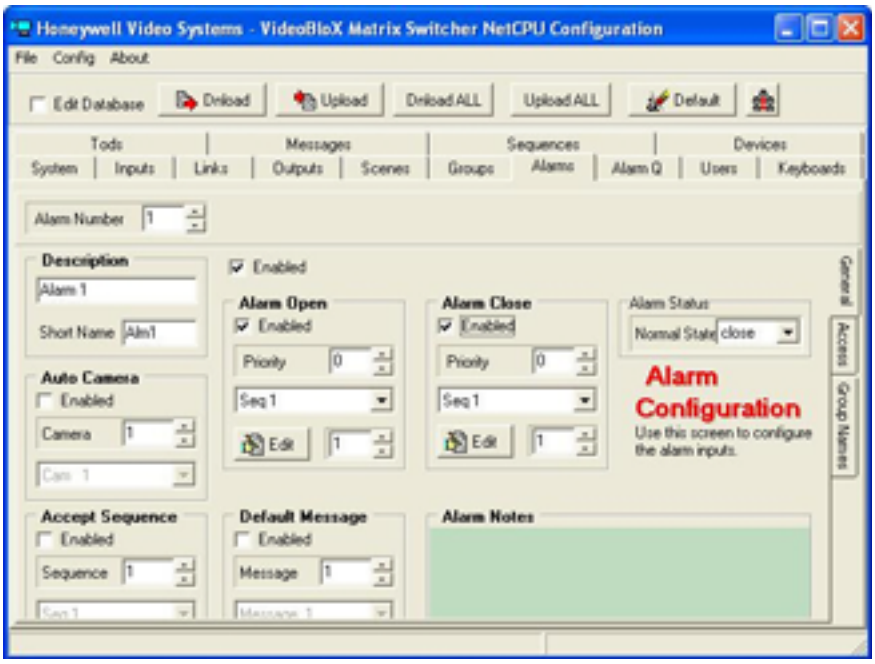


Alarm Configuration

This section describes how to use alarm sequences where the alarm input (outside) is connected to the alarm input 1 of the HVBGPIO (addressed 1). (The alarm number = alarm input + (HVBGPIO address -1) x 24 = 1).

1. In a practical application, you should select **Correct** normal status in the Alarm Status, **Normal State** drop-down list.
2. To enable alarm sequence, select the **Enabled** checkbox.
3. NETCFG provides two alarm sequences: one for an incoming alarm and one for an outgoing alarm.

Figure B-3 Alarm Settings in NETCFG



Relay Configuration

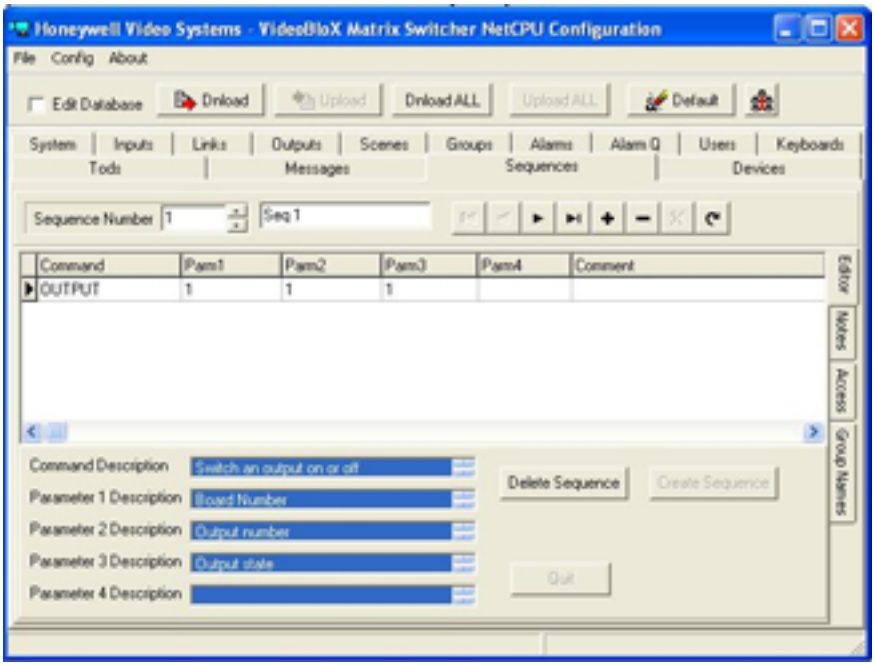
To set relay output 1 on the HVBGPIO board:

1. Select the **Sequences** tab.
2. Select the **OUTPUT** command.
3. **Parameter 1** of OUTPUT is the HVBGPIO board address.

   Parameter 2 is the Relay output port

   Parameter 3 is the state (enabled/disabled) of the relay output.

Figure B-4 Relay Settings in NETCFG



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