

AnyWhere Interface Box

The *Missing Link* for Control – Monitoring – Interfacing

Ethernet / Web-browser controlled Relays

Web browser control for serial and Ethernet devices

Serial to Ethernet / Ethernet to Serial

SNMP Trap Notification

Watchdog Timer

GPI to SNMP Notification

Convert Latching to Momentary GPI / Convert Momentary to Latching GPI

Ethernet Control

Serial Control

GPI Control

and much more.....

Problem Solved !



One Box Solution – No External Adapters Required – No Kludges

“Smart” control where you need it most

Powered over Ethernet (or external power supply)

Configure using web browser – Non-volatile Configuration – Save to PC – Restore from PC



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Revision History

Version 1.0	Original
Version 1.1	Added Installation and Configuration section
Version 1.2	Added operational note at end of Remote Device Assignment configuration web page.
Version 1.3	Added User name and Password to Installation and Configuration section.
Version 1.4	Added GTP-32/DC20 Receive Event , SNMP Trap Action
Version 1.5	Added GTP-32/DC20 Actions to Event Action Table
Version 1.6	Updated SNMP OID Value Type description
Version 1.10	Added additional Sequence functionality
Version 1.11	Updated and corrected content

The *Missing Link* for Control – Monitoring – Interfacing

Quickly and easily create control, monitoring, and interface solutions specifically for your project

- **No software programming or scripting required.** Using a web browser, simply select from drop down menus and fill in text boxes.

Select an Event Input:

GPI Input – Serial Receive – Ethernet Receive – Periodic/ Watchdog Timer – Web page button

And then assign an Action Output to it:

GPO Output – Serial Transmit – Ethernet Transmit – SNMP Transmit – SNMP Trap Notification

Use one Event Input to trigger multiple action outputs

- **No computer required to operate.** Your configuration is saved in the AnyWhere Interface Box. Power down and reboot without losing your configuration. Power up without a computer connected.

Save the configuration to a PC. Copy it to other AnyWhere Interface Boxes. Restore saved configurations from a PC.

- **Dynamic transmit actions.** Transmit simple or complex ASCII / Hex commands up to 256 characters in length. Transmit SNMP OIDs with Null, Integer or String values.

Transmit one command. Wait 1 – 999 milliseconds and then transmit a second command. Include multiple commands in one transmit action.

- **Flexible GPI/GPO operation.** Isolated inputs and isolated outputs allow different devices to be safely connected together. Convert latching GPI to momentary with defined on time. Convert momentary GPI to latching. Trigger multiple GPOs from one GPI to safely and simultaneously control devices requiring different voltage levels.

Use one GPI to alternately toggle two GPOs. Create a radio group of GPOs, allowing only one GPO to be on at a time (break before make).

- **Powerful receive data pattern matching.** Monitor serial and Ethernet data for specific ASCII characters, hex values, or binary bits. Match an exact character pattern i.e.: "ABCDEF" or match a partial pattern i.e.: "A*C**F". Match the most or least significant half of a hex value. Match a specific on/off bit pattern i.e.: 00110010, match a partial bit pattern i.e.: **1100*0, or match any specific bits as on or off i.e.: xx1x0x1x.

Use the "NOT" option to monitor system operation for abnormal status.

1. OVERVIEW

The AnyWhere Interface Box (AIB) maps an EVENT input to an ACTION output.

EVENT Inputs- GPI Input, Serial Receive, Ethernet Receive, and Periodic Timer

ACTION Outputs- GPO Output, Serial Transmit, Ethernet Transmit, and SNMP Transmit

Any EVENT can trigger any ACTION. One EVENT can trigger one ACTION. One EVENT can trigger multiple ACTIONS. GPI events trigger an ON ACTION and an OFF ACTION. Serial Receive, Ethernet Receive and Periodic Timer events trigger only ON ACTIONS.

Use the [EVENT ACTION TABLE](#) web page to map an EVENT to an ACTION.

EVENTS

A GPI ON event triggers an ON ACTION when the GPI turns on. A GPI OFF event triggers an OFF ACTION when it turns OFF. Use the “Do Nothing” action to ignore the GPI ON or OFF event. Use the [GPI EVENTS](#) web page to configure the individual operation of the 8 GPIs.

A Serial Receive and Ethernet Receive event turns ON, when received data matches the assigned, user entered data pattern, and then triggers an ON ACTION. Receive events do not trigger OFF ACTIONS. The Ethernet Receive data must come from the assigned IP address and Port number.

Serial and Ethernet Receive data pattern matching supports simple and complex pattern matching. Match a single received ASCII (ie: 'A') character or match a group of received characters (ie: 'control_on'). Match ASCII, binary and hexadecimal characters. Match the whole received character, the first half, the second half, specific bits, or ignore the whole character. Refer to the USAGE instructions on the serial and Ethernet receive event web pages.

Use the [SERIAL RECEIVE EVENTS](#) web page to enter serial data patterns. Use the [ETHERNET RECEIVE EVENTS](#) web page to enter Ethernet data patterns. Use the [REMOTE DEVICE ASSIGNMENT](#) web page to configure the remote device's IP address and Port number.

The Periodic Timer is a continuously running timer with a user assigned time period, 100 milliseconds to 1500 milliseconds (1.5 seconds). When the Timer time period expires, the Timer triggers an ON ACTION, and then automatically restarts itself. Use the [EVENT ACTION TABLE](#) web page to configure periodic timers

ACTIONS

GPO ON and GPO OFF actions are individually configurable for the 8 GPOs— Latch, Momentary, and Toggle. Specify the momentary on time. Also, configure GPOs to operate as a radio group (turning one on automatically turns the other members of the group off) or flip flop (a radio group of just two GPOs). Use the [GPO ACTIONS](#) web page to configure GPOs.

The Serial Transmit action transmits a user entered group of characters out the serial port. Configure the serial port's Transmit/ Receive baud rate and parity. 8-data bits. 1 Stop and Start bit. BREAK character (18 bits times), %BR, is supported.

The Ethernet Transmit action transmits a user entered group of characters to the user assigned IP Address and Port Number. UDP, TCP/IP (client and server), and SNMP are supported.

The Transmit action transmits ASCII and HEX characters, up to 256 in length. Add a %WT, WAIT, to delay transmission of characters, 1 to 999 milliseconds. The characters preceding %WT are sent immediately. The characters after %WT are sent when the wait timer expires. More than one WAIT can be included in a transmit action.

Use the [SERIAL PORT CONFIGURATION](#) web page to configure the serial port. Use the [SERIAL TRANSMIT ACTIONS](#) web page to enter serial transmit data. Use the [ETHERNET TRANSMIT ACTIONS](#) web page to enter Ethernet transmit data. Use the [REMOTE DEVICE ASSIGNMENT](#) web page to enter the remote device's IP address and Port number.

2. INSTALLATION & CONFIGURATION

INSTALLATION

Refer to the [REAR PANEL CONNECTORS](#) section for GPI, GPO, and serial connector pin out information.

Refer to the [GPIs, WET/ DRY Configuration](#) and [GPOs, WET/ DRY Configuration](#) sections for GPI and GPO Wet/ Dry configuration information.

Use the [GPI Events](#) web page to configure GPI operation.

Use the [GPO Actions](#) web page to configure GPO operation.

Use the [Serial Port Configuration](#) web page to configure the serial port.

Use the [Remote Device Assignment](#) web page to configure Ethernet connections.

POWER

The AnyWhere Interface Box is powered from an Ethernet switcher/ router that supports Power Over Ethernet (POE), or from an optional external power supply. The AIB requires 12 volts DC at 2 amps from an external power supply and 13 Watts from POE switch. An external power supply may be purchased from DNF Controls.

DEFAULT ETHERNET CONFIGURATION

IP Address: 192.168.10.217
Subnet Mask: 255.255.255.0
Gateway: 192.168.10.1

RESET

Press the RESET switch on the rear of the AIB to reboot it.

Press and hold the RESET switch for 10 seconds to reset the IP address, subnet mask, Gateway, and configuration to factory defaults.

CONFIGURATION

The AnyWhere Interface Box is configured using a standard web browser (Internet Explorer, Firefox, and Chrome). Enter the AIB's IP address in the Address/ URL bar, typically located at the top of the web browser page, to access the AIB's Home Page. Use the links on the left side of the Home Page to access the desired configuration web page.

All configuration settings are saved in non-volatile memory in the AIB. Settings are retained when power is removed from the AIB.

Settings may be uploaded to a computer as a configuration file (.dnf) for storage. Configuration files may be downloaded from a computer into the AIB to restore a saved configuration. A configuration file contains all of the AIB's configurations except IP address, subnet mask, and gateway address. The AIB does not support partial configuration upload or download. The configuration file is a not a text formatted file. It can not be viewed or modified with a text editor.

To access the System Configuration web page, use the following log-on when prompted.

User name: dnfuser

Password: controls

SYSTEM CONFIGURATION Web Page

P1 Software Upgrade:	Use this link to install the P1 upgrade file provided by DNF Controls
P2 Software Upgrade:	Use this link to install the P2 upgrade file provided by DNF Controls
Web Upgrade:	Use this link to install the Web pages upgrade file provided by DNF Controls
Save Configuration to PC:	Use this link to save the AIB's current configuration to a configuration file on a computer. The web browser will prompt for file name and directory. The file extension must be 'dnf'.
Restore Configuration from PC:	Use this link to download a configuration file from your computer to the AIB. The web browser will prompt for directory and configuration file name. The file extension must be 'dnf'.
Set Factory Defaults:	Use this link to reset all AIB configurations to factory defaults. This will NOT change the IP address, subnet mask or gateway address. The AIB will automatically reboot.
Enter the new IP settings below:	Enter the new IP address, Gateway, and Subnet Mask. Click on <u>Save Config</u> to save the new entries. The AIB will automatically reboot.
View Receive Data	Use these links to view received Ethernet and serial data. Use this information when creating Serial Receive and Ethernet Receive patterns.

3. GPI EVENTS Configuration Web Page

GPI Label	Enter any 15 characters or symbols. For convenience only. Used in Event Action Table
User Defined ON State	OPTO ON: The GPI is ON when the opto-isolator is energized (powered). The GPI is OFF when the opto-isolator is de-energized. OPTO OFF: The GPI is ON when the opto-isolator is de-energized. The GPI is OFF when the opto-isolator is energized (powered).
User Defined ON Mode	LATCHED: The GPI turns ON and stays ON. The GPI turns OFF and stays OFF. MOMENTARY: The GPI turns ON for a short time and then turns OFF and stays OFF. This pattern repeats every time the GPI become active.
Debounce Time	The time period that the GPI must remain ON to be detected as ON. The selected time is multiplied by 10 milliseconds to compute the actual Debounce time.
Currently	Current state of GPI as defined by User Defined ON State.

4. GPO ACTIONS Configuration Web Page

AnyWhere Interface Box

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GPO CONFIGURATION						
GPO#	GPO Label	User Defined ON State	Operating Mode	Momentary On Time (*10ms)	Group	Currently
1	GPO_1	Relay Closed	Latch	0	None	OFF
2	GPO_2	Relay Closed	Latch	0	None	OFF
3	GPO_3	Relay Closed	Latch	0	None	OFF
4	GPO_4	Relay Closed	Latch	0	None	OFF
5	GPO_5	Relay Closed	Latch	0	None	OFF
6	GPO_6	Relay Closed	Latch	0	None	OFF
7	GPO_7	Relay Closed	Latch	0	None	OFF
8	GPO_8	Relay Closed	Latch	0	None	OFF

GPO Label	Enter any 15 characters or symbols. For convenience only. Used in Event Action Table
User Defined ON State	<p>RELAY OPEN: The relay is OPEN when the GPO is ON. The relay is CLOSED when the GPO is OFF.</p> <p>RELAY CLOSED: The relay is CLOSED when the GPO is ON. The relay is OPEN when the GPO is OFF (Factory Default).</p>
User Defined Operating Mode	<p>MOMENTARY: The GPO turns ON, waits for the MOMENTARY ON TIME to expire, and then automatically turns OFF.</p> <p>LATCH: The GPO turns ON and stays ON. The GPO turns OFF and stays OFF.</p> <p>TOGGLE: The GPO alternates states with each GPO ON action. The GPO turns ON if it was previously OFF. The GPO turns OFF if it was previously ON.</p>
Momentary ON Time	For MOMENTARY operating mode only. ON duration for Momentary GPO. Drop down menu settable from 0.01 sec to 2.0 sec.
Group	<p>Radio Group RG1 – RG4: Only one GPO in a Group can be ON at a time. Before a GPO is turned ON, all of the other GPOs in the group are immediately turned off. (Break before make)</p> <p>FLIP-FLOP FF1–FF4: Only two GPOs can be assigned to one Flip-Flop group. Like a GPO Radio Group, when one GPO turns ON the other automatically turns OFF.</p>
Currently	Current state of GPO as defined by User Defined ON State.

5. SERIAL PORT CONFIGURATION Web Page

DNF CONTROLS AnyWhere Interface Box

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SERIAL PORT CONFIGURATION	
PORT CONFIGURATION:	RS422 CTRL
BAUD:	38400
PARITY:	ODD
DATA BITS:	8

Save

Port Configuration	RS232 DTE, RS422 Controller, or RS422 Device
Baud Rate	300, 1200, 2400, 4800, 9600, 19200, 38400
Parity	None, Odd, Even
Data Bits	Fixed at 8
Stop Bits	Fixed at 1
Start Bits	Fixed at 1

6. SERIAL RECEIVE EVENTS Configuration Web Page

USAGE:
Event Label is 1 - 32 characters in length. Use 'A' - 'Z', 'a' - 'z', and '0' - '9'. Label is for convenience only. Used in Event Action Table.

ASCII/HEX Receive Data is 1 - 16 character patterns in length.
Use %yz to enter a HEX value. y and z are values 0 - 9, A - F, or 'X'. Two characters must follow '%'.
Use %Xz to match only z. Use %yX to match only y. Use %XX to ignore value.

Use #yyyyyyyy to match an exact bit pattern. Y values are '0', '1', or 'X' (don't care).
Use <yyyyyyyy to match any bit in the bit pattern. Y values are '0', '1', or 'X' (don't care).

Use '!' to NOT match a character pattern.
Example: Event Label= TEST. Receive Data= !A If any character other than 'A' is received, then TEST event is ON. If 'A' is received, then TEST event is OFF.
Use !y, !%yz, or !#yyyyyyyy to specify a NOT pattern match.


NOTE- Spaces between patterns are ignored. Use %20 to match a space character.

ETHERNET RECEIVE EVENTS	
Line#	Event Label
1	Ethernet Receive 1
2	Ethernet Receive 2
3	Ethernet Receive 3
4	Ethernet Receive 4
5	Ethernet Receive 5
6	Ethernet Receive 6
7	Ethernet Receive 7
8	Ethernet Receive 8
9	Ethernet Receive 9
10	Ethernet Receive 10
11	Ethernet Receive 11
12	Ethernet Receive 12
13	Ethernet Receive 13
14	Ethernet Receive 14

Event Label	Enter any 32 characters. This label is for convenience only and is used in the Event Action Table.
ASCII/ HEX Receive Data	<p>Enter 1- 16 characters and/or bit patterns to match against received serial data.</p> <p>The received characters must exactly match the order and value of the entered patterns. If a received character does not match the entered pattern, all previous matches are discarded and the match process begins again with the first entered pattern. If more than 1 second elapses between received characters, all previous matches are discarded and the match process begins again.</p> <p>Use %yz to enter a HEX character. 'y' and 'z' are values 0 - 9, A - F, or 'X' (don't care).</p> <p>Enter %Xz to match only the z part of the HEX character. Enter %yX to match only the y part of the HEX character. Enter %XX to ignore the received value.</p> <p>Use #yyyyyyyy to match an exact bit pattern. 'y' values are '0', '1', or 'X' (don't care). For example, enter #0XXX1XXX to match bit7= 0 and bit3= 1. Bit0 is on the far right. Bit7 is on the far left.</p> <p>Use <yyyyyyyy to match any bit in the bit pattern. 'y' values are '0', '1', or 'X' (don't care). For example, enter <0XXX1XXX to match bit7=0 or bit3= 1. Bit0 is on the far right. Bit7 is on the far left.</p> <p>Use '!' to NOT match a character pattern. For example: Event Label= TEST. Receive pattern= !A. If any character other than 'A' is received, then TEST event is ON. If 'A' is received, then TEST event is OFF. Use !y, !%yz, or !#yyyyyyyy to specify a NOT pattern match.</p> <p>NOTE- Spaces between patterns are ignored. Use %20 to match a space character.</p>

Pattern matching examples can be found in the back of this manual.

7. SERIAL TRANSMIT ACTIONS Configuration Web Page



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USAGE:
 Action Label is 1 - 32 characters in length. Use 'A' - 'Z', 'a' - 'z', and '0' - '9'. Label is for convenience only. Used in Event Action Table.


ASCII/HEX Command is 1 - 256 characters in length.
 Use %xy to enter HEX value, x and y are values 0 - 9 or A- F. Two characters must follow %.
 Use %BR to add serial BREAK (18 bit times). Valid only at beginning of command followed by at least one character.
 Use %WTttt to add WAIT. Transmit command up to %WT. Wait ttt time, 001 - 999 milliseconds. Transmit next part of command.
 NOTE-%WT is only an approximate wait time.

NOTE- Spaces between characters are NOT transmitted. Use %20 to transmit a space character.

SERIAL TRANSMIT ACTIONS		
Line#	Action Label	ASCII/HEX Command
1	Serial Transmit 1	
2	Serial Transmit 2	
3	Serial Transmit 3	
4	Serial Transmit 4	
5	Serial Transmit 5	
6	Serial Transmit 6	
7	Serial Transmit 7	
8	Serial Transmit 8	

Action Label	Enter any 32 characters. This label is for convenience only and is used in the Event Action Table.
ASCII/ HEX Command	<p>The ASCII/HEX Command is 1 - 256 characters in length.</p> <p>Use %yz to enter a HEX value. 'y' and 'z' are values 0 - 9 or A- F. Two characters must follow %.</p> <p>Use %BR to add a serial BREAK (18 bit times). BREAK is valid only at the beginning of a command and must be followed by at least one character.</p> <p>Use %WTttt to add a WAIT time, 001 - 999 milliseconds. Three numbers must follow %WT. The characters preceding %WT are sent immediately. The characters after %WTttt are sent after the wait time expires. More than one %WT can be included in a command. NOTE- %WT is only an approximate wait time.</p> <p>NOTE- Spaces between characters are NOT transmitted. Use %20 to transmit a space character.</p>

8. REMOTE DEVICE ASSIGNMENT Configuration Web Page



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REMOTE DEVICE LIST									
Device #	Remote Device Label	Device Type	Connection Type	Connection Mode	UDP Attempts	IP Address	Port Number	Heartbeat Rate (seconds)	Connection Status
1	SNMP Manager	Other	SNMP	Client Transmit/Receive	3	192.168.10.105	161	5	-----
2	VTR 102	GTP-32/DC20	UDP	Client Transmit/Receive	3	192.168.10.211	0	5	-----
3	AV System	Other	TCP/IP	Client Transmit/Receive	3	3.144.125.13	12345	5	-----
4	Multi-viewer	Other	UDP	Client Transmit/Receive	3	172.134.214.14	2345	5	-----

NOTE:
Connection Status active only for GTP-32/DC Device Type and TCP/IP Connection Types

TCP/IP Connection Mode
 Client Transmit: Connect -> Transmit -> Disconnect
 Client Transmit/Receive: Connect -> Stay Connected.
 Server Receive/Transmit: Accept connections from only assigned IP Address

AnyWhere Interface Box receives UDP messages on port **50000**.
 AnyWhere Interface Box's UDP source port is **50000**.

UDP or TCP/IP messages are accepted only from assigned IP Address and Port Number combination in List.
 Set Port Number= 0 to accept messages from any Port Number at assigned IP Address.
 Port Number= 0 will disable transmit to this Remote Device. To transmit, assign another Remote Device with the same source IP Address and a non-zero Port Number.

TCP/IP Server Mode:
 AIB listens on Port **50001** for connection from Device 1
 AIB listens on Port **50002** for connection from Device 2
 AIB listens on Port **50003** for connection from Device 3
 AIB listens on Port **50004** for connection from Device 4

Remote Device Label	Enter any 32 characters. This label is for convenience only and is used in the Event Action Table.
Device Type	OTHER GTP-32/DC20- Use to connect to DNF Controls GTP-32 and DC20 devices
Connection Type	Select UDP, SNMP, SNMP TRAP, or TCP/IP. NOTE- AnyWhere Interface Box listens only on Port 50000 for UDP messages.
Connection Mode	For TCP/IP Only Client Transmit: Establish connection to remote device. Transmit command. Disconnect from remote device. Client Transmit/Receive: Establish connection to remote device. Maintain connection to remote device. Server Receive/Transmit: Accept connection from client. Only client at assigned IP Address can connect The client is responsible for maintaining connection. Server Mode only, AnyWhere Interface Box listens on the following ports: Port 50001 for connection from Remote Device 1 Port 50002 for connection from Remote Device 2 Port 50003 for connection from Remote Device 3 Port 50004 for connection from Remote Device 4


UDP Attempts	For UDP and SNMP Connection Type only. The number of times that the message will be sent separated by 10milliseconds. Since UDP does not provide guaranteed delivery, UDP Attempts provides more than one transmit attempt to deliver the message.
IP Address	Client or Destination IP address
Port Number	Destination port number for transmit actions Source port number for receive events
Heartbeat Rate	For GTP-32/DC20 Device Types. Default value is 5 seconds. Communication error is defined as loss of two consecutive heartbeats.
Connection Status	For TCP/IP Connection Types only.

Please note-

The AnyWhere Interface Box will transmit messages only to the specified IP address **and** Port number listed in the Remote Device Assignment Table.

The AnyWhere Interface Box will only accept UDP and TCP/IP messages only from the specified IP address **and** Port number listed in the Remote Device Assignment Table. The sender's IP address and Port number must match the entry in the table.

9. ETHERNET RECEIVE EVENTS Configuration Web Page



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USAGE:
Event Label is 1 - 32 characters in length. Use 'A' - 'Z', 'a' - 'z', and '0' - '9'.
Label is for convenience only. Used in Event Action Table.

GPI Events

ASCII/HEX Receive Data is 1 - 16 character patterns in length.
Use %yz to enter a HEX value. y and z are values 0 - 9, A - F, or 'X'. Two characters must follow '%'.
Use %Xz to match only z. Use %yX to match only y. Use %XX to ignore value.

GPO Actions

Use #yyyyyyyy to match an exact bit pattern. Y values are '0', '1', or 'X' (don't care).
Use <yyyyyyyy to match any bit in the bit pattern. Y values are '0', '1', or 'X' (don't care).

Serial Port Configuration

Use '! ' to NOT match a character pattern.
Example: Event Label= TEST. Receive Data= !A If any character other than 'A' is received, then TEST event is ON. If 'A' is received, then TEST event is OFF.
Use '!y', '!%yz, or !#yyyyyyyy to specify a NOT pattern match.

Serial Receive Events

NOTE- Spaces between patterns are ignored. Use %20 to match a space character.

Serial Transmit Actions

ETHERNET RECEIVE EVENTS		
Line#	Event Label	ASCII/HEX Receive Data
1	Ethernet Receive 1	
2	Ethernet Receive 2	
3	Ethernet Receive 3	
4	Ethernet Receive 4	
5	Ethernet Receive 5	
6	Ethernet Receive 6	
7	Ethernet Receive 7	
8	Ethernet Receive 8	
9	Ethernet Receive 9	
10	Ethernet Receive 10	
11	Ethernet Receive 11	
12	Ethernet Receive 12	
13	Ethernet Receive 13	

Remote Device Assignment

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Ethernet Transmit Actions

SNMP Transmit Actions

SNMP Trap Actions

GTP-32/DC20 Receive Events


Event Action Table

System Configuration

Event Label	Enter any 32 characters. This label is for convenience only and is used in the Event Action Table.
ASCII/ HEX Receive Data	<p>Enter 1- 16 characters and/or bit patterns to match against received serial data.</p> <p>The received characters must exactly match the order and value of the entered patterns. If a received character does not match the entered pattern, all previous matches are discarded and the match process begins again with the first entered pattern. If more than 1 second elapses between received characters, all previous matches are discarded and the match process begins again.</p> <p>Use %yz to enter a HEX character. 'y' and 'z' are values 0 - 9, A - F, or 'X' (don't care).</p> <p>Enter %Xz to match only the z part of the HEX character. Enter %yX to match only the y part of the HEX character. Enter %XX to ignore the received value.</p> <p>Use #yyyyyyyy to match an exact bit pattern. 'y' values are '0', '1', or 'X' (don't care). For example, enter #0XXX1XXX to match bit7= 0 and bit3= 1. Bit0 is on the far right. Bit7 is on the far left.</p> <p>Use <yyyyyyyy to match any bit in the bit pattern. 'y' values are '0', '1', or 'X' (don't care). For example, enter <0XXX1XXX to match bit7=0 or bit3= 1. Bit0 is on the far right. Bit7 is on the far left.</p> <p>Use '! ' to NOT match a character pattern. For example: Event Label= TEST. Receive pattern= !A. If any character other than 'A' is received, then TEST event is ON. If 'A' is received, then TEST event is OFF. Use !y, !%yz, or !#yyyyyyyy to specify a NOT pattern match.</p> <p>NOTE- Spaces between patterns are ignored. Use %20 to match a space character.</p>

Pattern matching examples can be found in the back of this manual.

10. ETHERNET TRANSMIT ACTIONS Configuration Web Page



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USAGE:
 Action Label is 1 - 32 characters in length. Use 'A' - 'Z', 'a' - 'z', and '0' - '9'. Label is for convenience only. Used in Event Action Table.


ASCII/HEX Command is 1 - 256 characters in length.
 Use %xy to enter HEX value. x and y are values 0 - 9 or A- F. Two characters must follow %.
 Use %WTttt to add WAIT. Transmit command up to %WT. Wait ttt time, 001 - 999 milliseconds. Transmit next part of command.
 NOTE-%WT is only an approximate wait time.

NOTE- Spaces between characters are NOT transmitted. Use %20 to transmit a space character.

ETHERNET TRANSMIT ACTIONS		
Line#	Action Label	ASCII/HEX Command
1	Ethernet Transmit 1	
2	Ethernet Transmit 2	
3	Ethernet Transmit 3	
4	Ethernet Transmit 4	
5	Ethernet Transmit 5	
6	Ethernet Transmit 6	
7	Ethernet Transmit 7	
8	Ethernet Transmit 8	

Action Label	Enter any 32 characters. This label is for convenience only and is used in the Event Action Table.
ASCII/ HEX Command	<p>The ASCII/HEX Command is 1 - 256 characters in length.</p> <p>Use %yz to enter a HEX value. 'y' and 'z' are values 0 - 9 or A- F. Two characters must follow %.</p> <p>Use %WTttt to add a WAIT time, 001 - 999 milliseconds. Three numbers must follow %WT. The characters preceding %WT are sent immediately. The characters after %WTttt are sent after the wait time expires. More than one %WT can be included in a command. NOTE- %WT is only an approximate wait time.</p> <p>NOTE- Spaces between characters are NOT transmitted. Use %20 to transmit a space character.</p>

11. SNMP TRANSMIT ACTIONS Configuration Web Page



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GPI Events

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Serial Port Configuration

Serial Receive Events

Serial Transmit Actions

Remote Device Assignment

Ethernet Receive Events

Ethernet Transmit Actions

SNMP Transmit Actions

SNMP Trap Actions

GTP-32/DC20 Receive Events

Event Action Table

System Configuration

USAGE:
Action Label is 1 - 32 characters in length. Use 'A' - 'Z', 'a' - 'z', and '0' - '9'. Label is for convenience only. Used in Event Action Table.

Community string is 1 - 32 characters in length. Typical value is 'public'.

Use dot notation to enter Object Identifier(OID). Use decimal values only, ie: 1.2.3.4.5.6.7.8
Maximum decimal value is **99999999**


Use dot notation for OID VALUE octet string OR enter as ASCII characters

OID VALUE Type:
Integer- Valid decimal values: 0 → 999999
Octet String- using dot notation, maximum decimal value: 999999.
Octet String- ASCII characters, (do not use dot notation).

SNMP TRANSMIT ACTIONS						
Line#	Action Label 32 characters max	Community 16 characters max	Command	OID 256 characters max. Use dot notation with decimal values	VALUE TYPE	OID VALUE 16 char max
1	Test 1	public	SET	1.3.6.1.4.1.21541.6.1.0	Integer	999999
2	Test 2	public	SET	1.3.6.1.4.1.21541.6.1.0	Octet String	999999
3	Test 3	public	SET	1.3.6.1.4.1.21541.6.1.0	Octet String	999999
4	SNMP Transmit 4	public	SET		Null	
5	SNMP Transmit 5	public	SET		Null	
6	SNMP Transmit 6	public	SET		Null	
7	SNMP Transmit 7	public	SET		Null	
8	SNMP Transmit 8	public	SET		Null	

Action Label	Enter any 32 characters. This label is for convenience only and is used in the Event Action Table.
Community	Community string is 1 - 32 characters in length. Typical value is 'public'.
Command	SET, GET, GET RESPONSE
Object Identifier (OID)	The OID is 8 - 256 decimal values in length entered in dot notation. Only decimal values are accepted. ie: 1.22.333.4.55.666.7.88. Maximum entered decimal value is 99999999.
Value Type	OID Value Type:
OID Value	Integer: Enter decimal value 0 – 999999 for OID value Octet Integer: Enter decimal value 0 – 999999 for OID value Octet String: Enter 16 alphanumeric characters NULL: Set to NULL when no OID value is entered.

12. SNMP TRAP ACTIONS Configuration Web Page



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Remote Device Assignment

Ethernet Receive Events

Ethernet Transmit Actions

SNMP Transmit Actions

SNMP Trap Actions

GTP-32/DC20 Receive Events

Event Action Table

System Configuration

USAGE:
Community, Enterprise OID, and at least one OID is required for a SNMP TRAP message.

Action Label is 1 - 22 characters in length and for convenience only. Used in Event Action Table.

Enter Community using '0'-'9', 'A'-'Z', and 'a'-'z'. Community is 1 - 16 characters in length. Typical value is 'public'.

Enter Enterprise OID using dot notation, 8 → 40 characters in length. Use decimal values only. ie: 1.2.3.4.5.6.7.8
Maximum supported decimal value is **99999999**

Enter Generic and Specific Trap number, 0 → 65535

Enter OID1, OID2, & OID3 using dot notation, 8 → 40 characters in length. Use decimal values only. ie: 1.2.3.4.5.6.7.8

Enter OID VALUE as number 0 → 999999 when Value Type is Integer

When Value Type is octet string:
Enter OID VALUE as number 0 → 999999, followed by a dot, ie: 123.
Enter OID VALUE as characters 1 → 16 in length (do not use dot notation).

SNMP TRAP ACTIONS						
Line#	Action Label	Community	Generic Trap	OID 1	VALUE TYPE	OID 1 VALUE
		Enterprise OID	Specific Trap	OID 2		OID 2 VALUE
				OID 3		OID 3 VALUE
1	SNMP Trap 1	public	0		Null	
			0		Null	
2	SNMP Trap 2	public	0		Null	
			0		Null	
3	SNMP Trap 3	public	0		Null	
			0		Null	

Action Label	Enter any 32 characters. This label is for convenience only and is used in the Event Action Table.
Community	Community string is 1 - 16 characters in length. Typical value is 'public'.
Enterprise OID	The OID is 8 - 256 decimal values in length entered in dot notation. Only decimal values are accepted. i.e.: 1.22.333.4.55.666.7.88. Maximum entered decimal value is 99999999.
Generic Trap	Enter value 0 - 65535
Specific Trap	Enter value 0 - 65535
Object Identifier OID1, OID2, OID3	The OID is 8 - 256 decimal values in length entered in dot notation. Only decimal values are accepted. i.e.: 1.22.333.4.55.666.7.88. Maximum entered decimal value is 99999999.
Value Type OID Value	OID Value Type: Integer: Enter decimal value 0 – 999999 for OID value Octet Integer: Enter decimal value 0 – 999999 for OID value Octet String: Enter 16 alphanumeric characters NULL: Set to NULL when no OID value is entered.

13. GTP-32/ DC20 RECEIVE EVENTS Configuration Web Page

DNF AnyWhere Interface Box

Home

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Serial Transmit Actions

Remote Device Assignment

Ethernet Receive Events

Ethernet Transmit Actions

SNMP Transmit Actions

SNMP Trap Actions

GTP-32/DC20 Receive Events

Event Action Table

System Configuration

GTP-32/ DC20 RECEIVE EVENTS		
Line#	Event Label	GTP-32/ DC20 Event Label
1	EVENT LABEL 1	
2	EVENT LABEL 2	
3	EVENT LABEL 3	
4	EVENT LABEL 4	
5	EVENT LABEL 5	
6	EVENT LABEL 6	
7	EVENT LABEL 7	
8	EVENT LABEL 8	
9	EVENT LABEL 9	
10	EVENT LABEL 10	
11	EVENT LABEL 11	
12	EVENT LABEL 12	
13	EVENT LABEL 13	
14	EVENT LABEL 14	
15	EVENT LABEL 15	
16	EVENT LABEL 16	

Save

Event Label	Enter any 32 characters. This label is for convenience only and is used in the Event Action Table.
GTP-32/ DC20 Event label	Enter the GTP-32 or DC20 Event Label to tally. This Event Label must be listed in the GTP-32/ DC20's Event Notification Table with the IP address of the AnyWhere Interface Box. The entered Event Label must exactly match the event label in the Event Notification Table.

NOTE- The GTP-32/ DC20 Receive Event type event is only displayed in the Event Action Table for Remote Devices of Device Type "GTP-32/ DC20".

14. EVENT ACTION TABLE Configuration Web Page

DNF AnyWhere Interface Box

Home
GPI Events
GPO Actions
Serial Port Configuration
Serial Receive Events
Serial Transmit Actions
Remote Device Assignment
Ethernet Receive Events
Ethernet Transmit Actions
SNMP Transmit Actions
SNMP Trap Actions
GTP-32/DC20 Receive Events
Event Action Table
System Configuration

USAGE:
The Remote Device "Device Type" and "Connection Type" on the Remote Device Assignment page determine the actions displayed in the ON ACTION and OFF ACTION drop down menus.

Save Execute Action

Line#	EVENT IN			ON ACTION			OFF ACTION		
	Source	Event Type	Event	Local/Remote Device	Type	Action Label	Local/Remote Device	Type	Action Label
1	Local	GPI	GPI_1	Local	GPO ON	GPO_1	Local	GPO OFF	GPO_1
2	Local	GPI	GPI_2	Local	GPO ON	GPO_2	Local	GPO OFF	GPO_2
3	Local	GPI	GPI_3	Local	GPO ON	GPO_3	Local	GPO OFF	GPO_3
4	None	GPI	GPI_1	Local	GPO OFF	GPO_1	Local	GPO OFF	GPO_1
5	Local	GPI	GPI_4	SNMP Manager	SNMP Transmit	Test 1	SNMP Manager	SNMP Transmit	Test 2
6	None	GPI	GPI_1	Local	GPO OFF	GPO_1	Local	GPO OFF	GPO_1
7	None	GPI	GPI_1	Local	GPO OFF	GPO_1	Local	GPO OFF	GPO_1
8	None	GPI	GPI_1	Local	GPO OFF	GPO_1	Local	GPO OFF	GPO_1
9	Local	Cont. Timer-1	10 sec	VTR 102	Ethernet Transmit	Ethernet Transmit 2	Local	GPO OFF	GPO_1
10	None	GPI	GPI_1	Local	GPO OFF	GPO_1	Local	GPO OFF	GPO_1
11	Local	Sequence Timer A	10 sec	Remote Device 3	Ethernet Transmit	Ethernet Transmit 2	Local	GPO OFF	GPO_1
12	Local	Sequence Timer A	3 sec	Remote Device 4	Ethernet Transmit	Ethernet Transmit 7	Local	GPO OFF	GPO_1
13	Local	Sequence Timer A	6 sec	Remote Device 4	Ethernet Transmit	Ethernet Transmit 8	Local	GPO OFF	GPO_1
14	Local	Sequence Timer A	4 sec	Remote Device 3	Ethernet Transmit	Ethernet Transmit 3	Local	GPO OFF	GPO_1
15	None	GPI	GPI_1	Local	GPO OFF	GPO_1	Local	GPO OFF	GPO_1
16	None	GPI	GPI_1	Local	GPO OFF	GPO_1	Local	GPO OFF	GPO_1
17	None	GPI	GPI_1	Local	GPO OFF	GPO_1	Local	GPO OFF	GPO_1
18	None	GPI	GPI_1	Local	GPO OFF	GPO_1	Local	GPO OFF	GPO_1

On an Event Action Table line, select an EVENT IN on the left side of the table and then select an ACTION on the right side. Some events only support ON ACTIONS, so the OFF ACTION entries will be grayed out.

One EVENT IN can trigger more than one ACTION. Select the same EVENT IN on multiple lines and then select an ON or OFF ACTION on each line.

Only EVENTS and ACTIONS associated with the Remote Device's Device Type or Connection Type will be displayed in the drop down menus. If the desired event or action is not displayed, then go to the Remote Device Assignment web page and change the Device Type or Connection Type for the Remote Device.

There are 8 Continuous Timers. Each timer may be used only once in the table. The Continuous Timer will execute the assigned ON ACTION when the selected time period expires and automatically restart itself. Use the Restart Continuous Timer action to use a timer as a Watchdog Timer.

There are 2 Sequence Timers. Use each Sequence Timer event in multiple lines to create a repeating sequence of events. The first Sequence A and B entry in the table will start using the assigned time period. When the time period expires, the assigned ON ACTION will execute. The timer will restart using the time period of the next Sequence Timer A and B entry in the table. All Sequence Timer A actions will execute in the order listed in the table. All Sequence Timer B actions will execute in the order listed. After the last sequence entry is executed, the first entry in the table is executed. Sequences do not need to use consecutive lines. See [Example- Sequence Configuration](#) section for examples.

NOTE-All timers and sequences are restarted whenever the Event Action Table is updated and saved or saved without changes.

E V E N T I N	Source	None (Disable line) Local Event Remote Device Event
	Event Type	<p>Local: GPI GPI changed from OFF to ON. The selected ON ACTION will execute. GPI changed from ON to OFF. The selected OFF ACTION will execute</p> <p>Serial Receive event A successful pattern match has occurred for the selected Serial Receive Event pattern. Only ON ACTION is executed.</p> <p>Continuous Timer-1 through Timer-8 The timer's time has expired. Only ON ACTION is executed. The timer automatically restarts for the same time period. A timer may only be used once in the table. 8 timers are provided.</p> <p>Sequence A Timer & Sequence B Timer The sequence timer's time has expired. Only ON ACTION is executed. The timer automatically restarts for the time period of the next sequence event in the table. After the last sequence event in the table has expired and its ON ACTION executed, the timer automatically restarts for the time period of the first sequence event in the table. All Sequence Timer A events execute from first line in Event Action Table to last line. After executing the last line, the sequence continues with the first Sequence Timer A line in the table. All Sequence Timer B events execute from first line in Event Action Table to last line. After executing the last line, the sequence continues with the first Sequence Timer B line in the table. The Sequence A/ B will automatically start running when Sequence Timer A/ B is the first sequence event in the Event Action Table.</p> <p>Sequence A Wait Start / Sequence B Wait Start The sequence will not automatically start and instead wait for a sequence Start action only when this event is the first sequence event in the Event Action Table. If another sequence event is in the table before this event, the Wait Start is ignored.</p> <p>Sequence A End / Sequence B End Immediately stop sequence. Use the sequence Start action to continue on the next sequence line in the Event Action Table.</p>
		<p>Remote: Ethernet Receive Event A successful pattern match has occurred for the selected Ethernet Receive Event pattern on the selected Remote Device. Only ON ACTION is executed. If the Ethernet Receive Event pattern is assigned to multiple Remote Devices, only the ON ACTION associated with the Remote Device that received the successful match will execute.</p> <p>GTP-32/DC20 Receive (Only available for Device Type "GTP-32/DC20") An Event Label was received that matched the selected GTP-32/DC20 Event Label on the selected Remote Device. Only ON ACTION is executed. If an Event Label is assigned to multiple Remote Devices, only the ON ACTION associated with the sending Remote Device will execute.</p>
Event	GPI Number, Serial Receive Event, Ethernet Receive Event, or GTP-32/DC20 Event Label. Continuous Timer or Sequence Timer time period.	

O N A C T I O N	Local / Remote	Execute Action on Local resource Execute Action on Remote Device
	Type	<p>Local: GPO Do Nothing Turn GPO ON Turn GPO OFF</p> <p>Serial Transmit Action Transmit selected Serial Action command once. If command contains WAIT (%WT), then transmit all characters prior to %WT, wait for the time period defined by %WT, and then transmit the remaining characters or until the next %WT. A command may contain more than one %WT.</p> <p>Restart Continuous Timer Restart the selected Continuous Timer to prevent it from expiring. Only when the timer expires will its ON ACTION execute. The continuous timer and Restart action can be used as a Watchdog Timer.</p> <p>Sequence A Start / Sequence B Start Start sequence on the next sequence line in the Event Action Table..</p> <p>Sequence A Stop / Sequence B Stop Immediately stop sequence. Use the sequence Start action to continue on the next sequence line in the Event Action Table.</p> <p>Sequence A Reset / Sequence B Reset Immediately stop sequence. Use the sequence Start action to start sequence from first sequence line in the Event Action Table.</p> <hr/> <p>Remote:</p> <p>Ethernet Transmit Action Transmit the selected Ethernet Action command. If command contains WAIT (%WT), then transmit all characters prior to %WT, wait for the time period defined by %WT, and then transmit the remaining characters or until the next %WT. A command may contain more than one %WT.</p> <p>SNMP Transmit Action (Only available for Connection Type “SNMP”) Transmit the selected SNMP Action. WAIT is not supported. The SNMP Action entry must contain a “Community” entry and OID entry.</p> <p>SNMP Trap Action (Only available for Connection Type “SNMP TRAP”) Transmit the selected SNMP TRAP Action. WAIT is not supported. The SNMP Action entry must contain a “Community” entry and at least one OID entry.</p> <p>If the Remote Device Connection Type is “UDP”, “SNMP”, or “SNMP TRAP”, the command will be transmitted “UDP Attempts” number of times. Each transmit attempt begins 10milliseconds after the previous attempt completes.</p> <p>GTP-32/ DC20 (Only available for Device Type “GTP-32/DC20”) Transmit GPI ON (as a Key Press), GPI OFF (as a Key Release), GPO ON, and GPO OFF messages to a GTP-32 /DC20 Remote Device.</p>

	Action Label	GPO Number Serial Transmit Action Ethernet Transmit Action SNMP Transmit Action (Only available for Remote Device Connection Type "SNMP") SNMP Trap Action (Only available for Remote Device Connection Type "SNMP TRAP")
O F F A C T I O N	Local / Remote	Execute Action on Local resource Execute Action on Remote Device
	Type	<p>Local: GPO Do Nothing Turn GPO ON Turn GPO OFF</p> <p>Serial Transmit Action Transmit selected Serial Action command once. If command contains WAIT (%WT), then transmit all characters prior to %WT, wait for the time period defined by %WT, and then transmit the remaining characters or until the next %WT. A command may contain more than one %WT.</p> <p>Restart Continuous Timer Restart the selected Continuous Timer to prevent it from expiring. Only when the timer expires will its ON ACTION execute. The continuous timer and Restart action can be used as a Watchdog Timer.</p> <p>Sequence A Start / Sequence B Start Start sequence on the next sequence line in the Event Action Table only when sequence is stopped.</p> <p>Sequence A Stop / Sequence B Stop Immediately stop sequence. Use the sequence Start action to continue on the next sequence line in the Event Action Table.</p> <p>Sequence A Reset / Sequence B Reset Immediately stop sequence. Use the sequence Start action to start sequence from first sequence line in the Event Action Table.</p>

O F F A C T I O N	Type	<p>Remote:</p> <p>Ethernet Transmit Action Transmit the selected Ethernet Action command. If command contains WAIT (%WT), then transmit all characters prior to %WT, wait for the time period defined by %WT, and then transmit the remaining characters or until the next %WT. A command may contain more than one %WT.</p> <p>SNMP Transmit Action (Only available for Connection Type "SNMP") Transmit the selected SNMP Action. WAIT is not supported. The SNMP Action entry must contain a "Community" entry and OID entry.</p> <p>SNMP Trap Action (Only available for Connection Type "SNMP TRAP") Transmit the selected SNMP TRAP Action. WAIT is not supported. The SNMP Action entry must contain a "Community" entry and at least one OID entry.</p> <p>If the Remote Device Connection Type is "UDP", "SNMP", or "SNMP TRAP", the command will be transmitted "UDP Attempts" number of times. Each transmit attempt begins 10milliseconds after the previous attempt completes.</p> <p>GTP-32/ DC20 (Only available for Device Type "GTP-32/DC20") Transmit GPI ON (as a Key Press), GPI OFF (as a Key Release), GPO ON, and GPO OFF messages to a GTP-32 /DC20 Remote Device.</p>
	Action Label	<p>GPO Number</p> <p>Serial Transmit Action</p> <p>Ethernet Transmit Action</p> <p>SNMP Transmit Action (Only available for Remote Device Connection Type "SNMP")</p> <p>SNMP Trap Action (Only available for Remote Device Connection Type "SNMP TRAP")</p>

15. REAR PANEL CONNECTORS



Physical size: 8.25" W x 4.125" D x 1.5" H

GPI CONNECTOR 8 Isolated Opto-Isolator Inputs			
Pin #	Description	Pin #	Description
1	Ground	14	GPI 8 +
2	GPI 8 -	15	+V
3	+V	16	GPI 7 -
4	GPI 7 +	17	GPI 6 +
5	GPI 6 -	18	+V
6	+V	19	GPI 5 -
7	GPI 5 +	20	GPI 4 +
8	GPI 4 -	21	+V
9	+V	22	GPI 3 -
10	GPI 3 +	23	GPI 2 +
11	GPI 2 -	24	+V
12	+V	25	GPI 1 -
13	GPI 1 +		

GPO CONNECTOR 8 Isolated Relay Contact Closure Outputs			
Pin #	Description	Pin #	Description
1	Ground	14	GPO 8 N.O.
2	GPO 8 Com	15	Common Bus
3	+V	16	GPO 7 N.O.
4	GPO 7 Com	17	GPO 6 N.O.
5	GPO 6 Com	18	Common Bus
6	Common Bus	19	GPO 5 N.O.
7	GPO 5 Com	20	GPO 4 N.O.
8	GPO 4 Com	21	Common Bus
9	Common Bus	22	GPO 3 N.O.
10	GPO 3 Com	23	GPO 2 N.O.
11	GPO 2 Com	24	Common Bus
12	Common Bus	25	GPO 1 N.O.
13	GPO 1 Com		

ETHERNET CONNECTOR
1- 10baseT
Supports Power Over Ethernet

S1 Switch
Press and hold 10 seconds to reset: IP address to 192.168.10.217 Configuration to default

USB CONNECTOR
Not Used

POWER CONNECTOR
12V DC, 2.0Amps

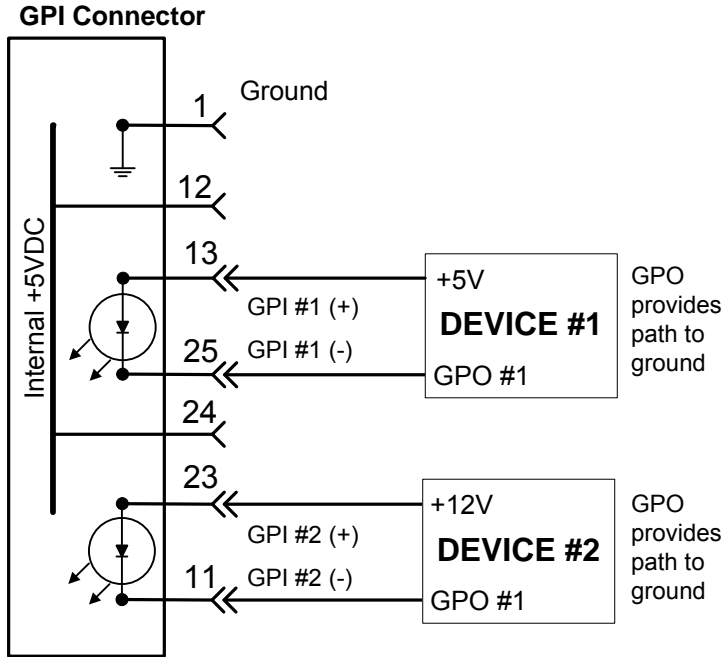
REAR PANEL CONNECTORS (continued)

SERIAL CONNECTOR			
Pin	RS232 DTE	RS422 Controller	RS422 Device
1	N/C	Frame Ground	Frame Ground
2	RxD	Receive A (-)	Transmit A (-)
3	TxD	Transmit B (+)	Receive B (+)
4	Tied to 6	Receive Common	Receive Common
5	Ground	N/C	N/C
6	Tied to 4	Transmit Common	Transmit Common
7	N/C	Receive B (+)	Transmit B (+)
8	N/C	Transmit A (-)	Receive A (-)
9	N/C	Frame Ground	Frame Ground

16. GPIs, WET/ DRY Configuration

EXAMPLE #1- Device Powered GPIs

GPI CONNECTION DIAGRAM



GPI Technical Data

Specification for GPI input:

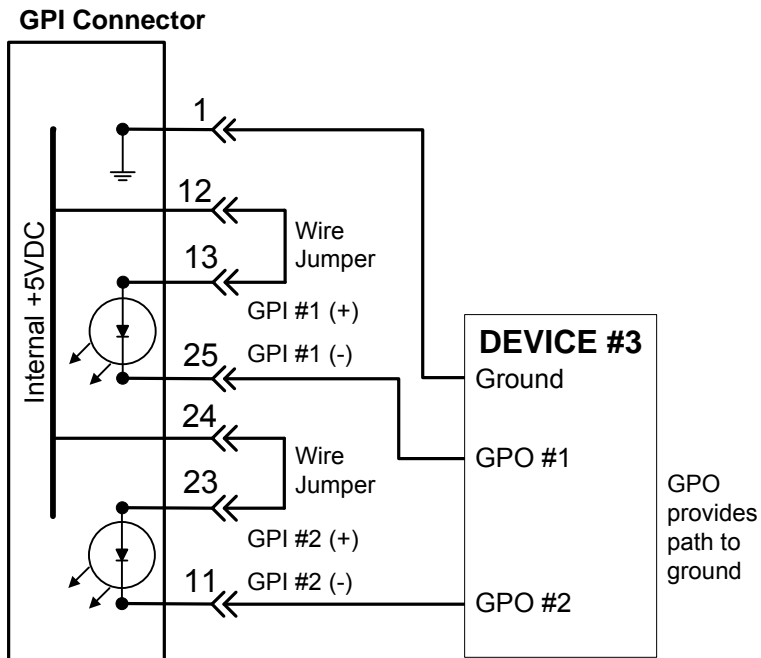
- Voltage: (Internal resistor only)
 - +3.3V minimum
 - +5V typical
 - +6V maximum
- Current: (Internal resistor only)
 - 5mA minimum
 - 10mA typical
 - 15mA maximum

For typical 10mA current, if external voltage is higher than +5V, a series resistor is required:

$$R_{ext} = (V_{ext} - 4.5) / 0.01$$

$V_{ext} = +9V \Rightarrow R_{ext} = 450 \text{ Ohms}$
 $V_{ext} = +12V \Rightarrow R_{ext} = 750 \text{ Ohms}$
 $V_{ext} = +24V \Rightarrow R_{ext} = 1950 \text{ Ohms}$

EXAMPLE #2- WET GPIs using internal +5V

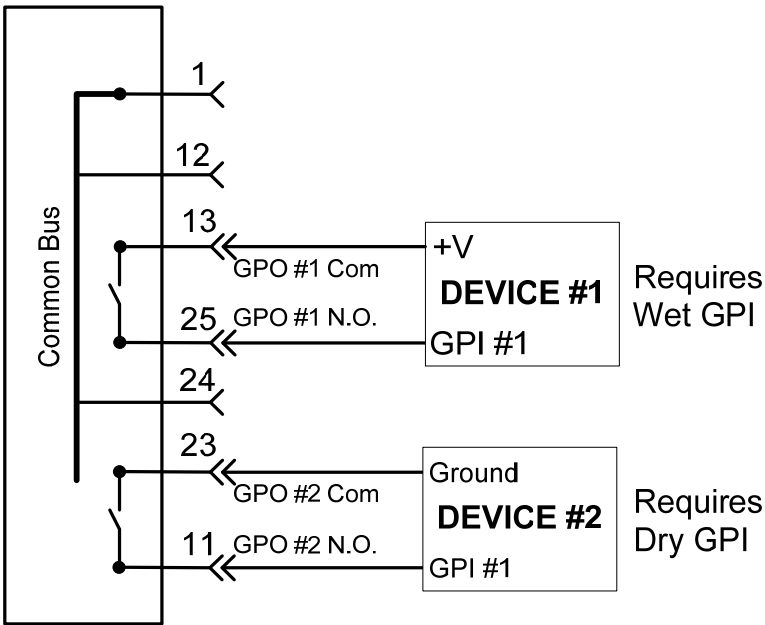


17. GPOs, WET/ DRY Configuration

EXAMPLE #1-
Isolated WET & DRY GPOs

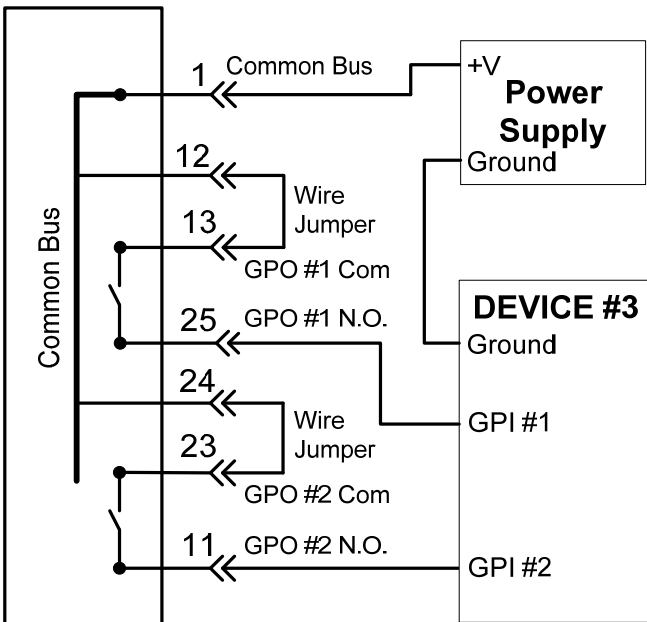
GPO CONNECTION DIAGRAM

GPO Connector



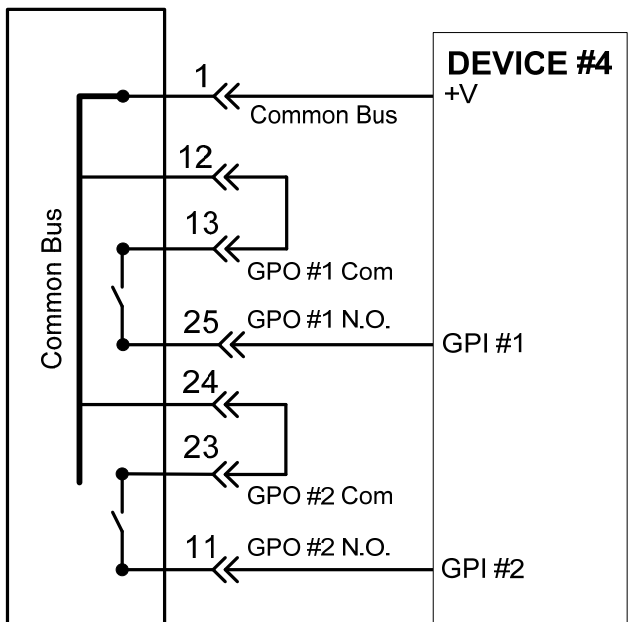
EXAMPLE #2-
External Power Supply to wet multiple GPOs

GPO Connector



EXAMPLE #3-
Device supplied power to wet multiple GPOs

GPO Connector



18. EXAMPLES: RECEIVE PATTERN MATCHING

NOTE- ASCII and HEC data can be mixed in a user entered pattern. For simplicity only, the examples do not mix ASCII or HEX in a user entered pattern.

ASCII Examples

User Entered Pattern	Received ASCII Data	Notes
ABCD	ABCDEF	Successful pattern match of first 4 received characters
ABCD	1234ABCDEF	Successful pattern match of 5 th , 6 th , 7 th , and 8 th received characters
ABCD	1234A5BCDEF	No pattern match. User entered pattern must be received as entered.
A %XX C D NOTE- spaces are not included in pattern match	ABCD ACCD AJCD A2CD	The value of the second character in the pattern, %XX, is like a wildcard, so it can be any character. A successful pattern match will result if the first, third and fourth characters are correct. All four received character patterns are a successful pattern match.
A %XX C D	1234ABCDEF 1234A5CDEF 4AKCDE	Successful pattern matches.
A %XX C D	ACD	No pattern match. Four characters must be received.

Hex Examples (Base 16 Numbering)

User Entered Pattern	Received Hex Data (spaces for display only)	Notes
%12 %34	12 34 12 34 56 78 56 78 12 34 9A 56 78 12 34	Successful pattern matches for hexadecimal values 12 and 34.
%X2	12 32 52 A2	The first half of the received Hex value is like a wildcard and can be any value. Only the second half must match the user entered value. Successful pattern matches.
%12 %4X	12 43 12 4A 12 49 56 98 12 49	The second half of the received Hex value is like a wildcard and can be any value. Only the first half must match the user entered value. Successful pattern matches.
%12 %4X	12 34 12 84 12 56	No pattern match.

Binary Examples (Base 2 Numbering)

User Entered Pattern	Received Binary Data	Notes
----------------------	----------------------	-------

	(spaces for display only)	
#0XXX1XXX Bit7 = 0, Bit3= 1 All other bits are "Don't care"	01011000	Bit 7 is immediately after the '#'. Bit 0 is on the far right. A pattern match occurs only when Bit 7= 0 and Bit3= 1. The received data must exactly match these identified bit values for a match. The values of the other 6 bits are ignored. Successful match.
#0XXX1XXX	01111111 00001000 01101001	Successful pattern matches.
#0XXX1XXX	10001000	No pattern match. Bit 7, on the far left is '1'. It must be '0' to match.
#0XXX1XXX	00000000	No pattern match. Bit 3 is '0'. It must be '1' to match.

User Entered Pattern	Received Binary Data (spaces for display only)	Notes
<0XXX1XXX Bit7 = 0, Bit3= 1 All other bits are "Don't care"	01011000	Bit 7 is immediately after the '#'. Bit 0 is on the far right. A pattern match occurs when Bit 7= 0 or Bit3= 1. Only one of the bits in the received data must match. The values of the other 6 bits are ignored Successful match.
<0XXX1XXX Bit7 = 0, Bit3= 1 All other bits are "Don't care"	11111111	Received Bit 7 =1. Received Bit 3= 1. At least one identified bit, Bit 3, matches. Successful pattern match.
<0XXX1XXX Bit7 = 0, Bit3= 1 All other bits are "Don't care"	10000000	Received Bit 7 =1. Received Bit 3= 0. None of the identified bits match the user entered pattern. No pattern match.
<0XXX1XXX Bit7 = 0, Bit3= 1 All other bits are "Don't care"	11111111 00000000 01010101 10101010	Successful pattern matches.
<0XXX1XXX Bit7 = 0, Bit3= 1 All other bits are "Don't care"	11110111 10000000 11010101 10100010	No pattern match.

ASCII Examples

User Entered Pattern	Received ASCII Data	Notes
----------------------	---------------------	-------

!A	B	A pattern match is successful when the received character is any character except 'A'.
!A	AAAAAA	All of the received characters are 'A'. No pattern match.
!A	AB	The second character is not an 'A'. The received data is a successful pattern match.
!A	BA	The first character is not an 'A' and is a successful pattern match. The received data is a successful pattern match.
!A	BC	No character is an 'A'. Successful pattern match.
!AB	AB	The first character can be any character except 'A'. The second character must be 'B'. No pattern match
!AB	CB DB ZB	The first character can be any character except 'A'. The second character must be 'B'. Successful pattern match
!AB	CD	The first character can be any character except 'A'. The second character must be 'B'. No pattern match

Hex Examples (Base 16 Numbering)

User Entered Pattern	Received Hex Data	Notes
!%12	12	A pattern match is successful when any value is received except 12. No pattern match.
!%12 34	22 34	A pattern match is successful when any value is received except 12, immediately followed by 34 Successful pattern match.
!%12 34	11 34 21 34 9F 34 87 34	Successful pattern matches.
!%12 34	11 12 34	No pattern match
!%12 34	11 22 34 11 45 34 56	Successful pattern matches

19. EXAMPLES: SEQUENCE CONFIGURATION

When the Sequence A / B Timer event assigned time expires, the associated ON Action will execute and then the timer for the next sequence will begin counting.

Upon receipt of a Sequence A Start action, the timer for the next Sequence A entry in the Event Action Table will start counting. Upon receipt of a Sequence B Start action, the timer for the next Sequence B entry in the Event Action Table will start counting.

Upon receipt of a Sequence A / B Stop action, the sequence will immediately stop. The sequence entry in progress will halt without executing. The Start action will cause the sequence to continue on the next sequence entry.

Upon receipt of a Sequence A / B Reset action, the sequence will immediately stop. The sequence entry in progress will halt without executing. The Start action will cause the sequence to start on the first entry in the Event Action Table.

Example #1 Wait for Sequence Start action and then play sequence until END and stop.

Event Type	Event	Description
Sequence A Wait Start		Wait for Sequence A Start action.
		(Received Sequence A Start Action)
Sequence A Timer	100ms	Delay 100ms and then execute assigned ON Action
Sequence A Timer	1 sec	Delay 1 second and then execute assigned ON Action
Sequence A Timer	10 sec	Delay 10 seconds and then execute assigned ON Action
Sequence A End		Immediately stop sequence

Example #2 Immediately after power up or Event Action Table SAVE, play sequence.

Event Type	Event	Description
Sequence A Timer	100ms	Delay 100ms and then execute assigned ON Action
Sequence A Wait Start		Ignored. Sequence continues with next entry
Sequence A Timer	100ms	Delay 100ms and then execute assigned ON Action
Sequence A Timer	1 sec	Delay 1 second and then execute assigned ON Action
Sequence A Timer	10 sec	Delay 10 seconds and then execute assigned ON Action
Sequence A End		Immediately stop sequence

Example #3 Wait for Sequence Start action and play sequence indefinitely or until Sequence Stop action is received.

Event Type	Event	Description
Sequence A Wait Start		Wait for Sequence A Start action.
		(Received Sequence A Start Action)
Sequence A Timer	100ms	Delay 100ms and then execute assigned ON Action
Sequence A Timer	1 sec	Delay 1 second and then execute assigned ON Action
Sequence A Timer	10 sec	Delay 10 seconds and then execute assigned ON Action
		If no END event, sequence continues with first entry after Wait Start

20. DNF CONTROLS LIMITED WARRANTY

DNF Controls warrants its product to be free from defects in material and workmanship for a period of one (1) year from the date of sale to the original purchaser from DNF Controls. In order to enforce the rights under this warranty, the customer must first contact DNF's Customer Support Department to afford the opportunity of identifying and fixing the problem without sending the unit in for repair. If DNF's Customer Support Department cannot fix the problem, the customer will be issued a Returned Merchandise Authorization number (RMA). The customer will then ship the defective product prepaid to DNF Controls with the RMA number clearly indicated on the customer's shipping document.

The merchandise is to be shipped to:

DNF Controls
12843 Foothill Blvd., Suite C
Sylmar, CA 91342
USA

Failure to obtain a proper RMA number prior to returning the product may result in the return not being accepted, or in a charge for the required repair. DNF Controls, at its option, will repair or replace the defective unit. DNF Controls will return the unit prepaid to the customer. The method of shipment is at the discretion of DNF Controls, principally UPS Ground for shipments within the United States of America. Shipments to international customers will be sent via air. Should a customer require the product to be returned in a more expeditious manner, the return shipment will be billed to their freight account.

This warranty will be considered null and void if accident, misuse, abuse, improper line voltage, fire, water, lightning or other acts of God damaged the product. All repair parts are to be supplied by DNF Controls, either directly or through its authorized dealer network. Similarly, any repair work not performed by either DNF Controls or its authorized dealer may void the warranty.

After the warranty period has expired, DNF Controls offers repair services at prices listed in the DNF Controls Price List. DNF Controls reserves the right to refuse repair of any unit outside the warranty period that is deemed non-repairable.

DNF Controls shall not be liable for direct, indirect, incidental, consequential or other types of damage resulting from the use of the product.