

Application Note – AN105

DVStation-Remote and GPI Contact Closures



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GPI is a user-programmable General-Purpose Interface for DVStation Remote Controller which provides programmable relay contact closures. The contact closures can be opened or closed when a user-configurable alarm is detected.

This mechanism provides a cost effective means to monitor the occurrence of an event and also to trigger external equipment on an alarm condition. DVStation-Remote contains four built-in GPI contacts.

Background

DVStation Remote provides four GPI – General Purpose Interface contacts which can be customized by the user. The relay contacts can be configured to open or close when triggered by an alarm condition, for example an ETR-290 error, RF modulation problem, or service or program loss.

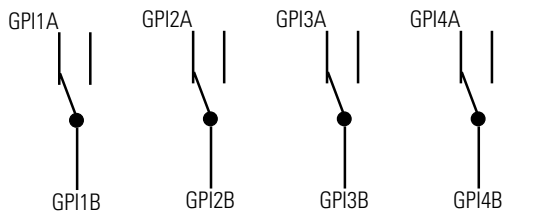
The behavior of the GPI contacts are controlled via a simple shell script. Additionally, every DVStation comes installed with full source code for the GPI routines to enable customization by end users or system integrators.

Upon boot up, the initial default state for all the GPIs is in the closed position.

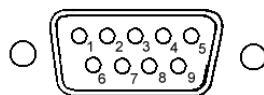
Hardware Architecture

The DVStation-Remote hardware architecture is built around a multi-purpose 1RU rack mount Pentium computer with a specially built controller board. That board provides a communication path to the external acquisition Pods, connectivity to the optional GPS antenna, and outputs for the GPI contacts.

The connector pins correspond to four SPDT relay connections which are connected as below:



The GPI contacts are brought out to the rear panel of the DVStation-Remote. The physical interface for the GPI contacts is a 9 pin D male connector.

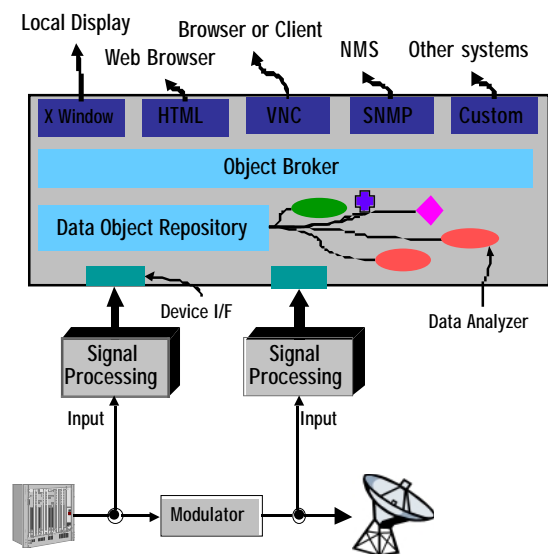


GPI Connector Pin-Out

Pin	Description	Group
1	GPI1A	1
2	GPI2A	2
3	GPI3A	3
4	GPI4A	4
5	GND	
6	GPI1B	1
7	GPI2B	2
8	GPI3B	3
9	GPI4B	4

DVStation Software Architecture

DVStation employs a multi-process architecture, dividing tasks between user/program interfacing and data collection, correlation, and storage.



Internal systems communication is based on CORBA, allowing additional software processes and/or control interfaces to be added – either locally or via a remotely located computer attached via LAN or WAN.

Alarm Script Programming

Alarm scripts are most often written in a linux shell script such as bash, csh, or sh.

To become available as an alarm action within DVStation, scripts must be copied to the /usr/local/dvstation/bin/ directory. This can be done either via FTP, or through DVStation's *upload* facility on the web browser interface.

- **Date** - The date the alarm occurred as "yyyy-mm-dd", eg "2002-06-30"
- **Time** - The time the alarm occurred as "hh:mm:ss.sss", eg "17:30:10.134"
- **Port source** - The port number alarm originated from. (equals 1-21 for DVStation and 1-4 for DVStation-Remote)
- **Message severity** - The severity of the alarm. There are 4 types.
 - 'C' for critical error
 - 'E' for error
 - 'W' for warning
 - 'I' for information
- **Message number** - A 4-digit string which identifies the alarm, eg "1190" for a sync loss alarm.
- **Message** - The message string for the alarm, eg "SYL : Lost transport stream synchronization".
- **Port name** - The port name on which the alarm occurs.

GPI Commands

There is one command available to control the status of the GPI contacts. The general syntax is:

```
testRemoteController (gpiopen | gpisclosed) n
```

where:

```
gpiopen – open the specified contact  
gpisclosed – close the specified contact  
n – the contact number(1-4)
```

For example, to open GPI 1:

```
testRemoteController gpiopen 1
```

To close GPI 3:

```
testRemoteController gpisclosed 3
```

Initial Configuration

DVStation can also be configured to run customized scripts upon startup. To do this, create a text file called dvmon.conf.local in the directory /usr/local/dvstation/etc. This file should contain the name of the script files to be executed. All script files named in the dvmon.conf.local file must be located in the /usr/local/dvstation/bin directory.

For example, if dvmon.conf.local contains:
DvStartGPI

where, DvStartGPI is a script file which contains commands to set the initial state of all the GPI relay contact to "open".

Script Example

The sample script below will close GPI 1 for two seconds and then open:

```
#!/bin/csh  
/usr/local/dvstation/bin/testRemoteController gpisclosed 1  
sleep 2  
/usr/local/dvstation/bin/testRemoteController gpiopen 1
```

For More Information

To learn more about the DVStation, request a demo, or learn how Pixelmetrix might help you optimize video network integrity, contact us today!

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About the Author
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