



Vess A2000 Series

IO Terminal Board

User Information

Version 1.0

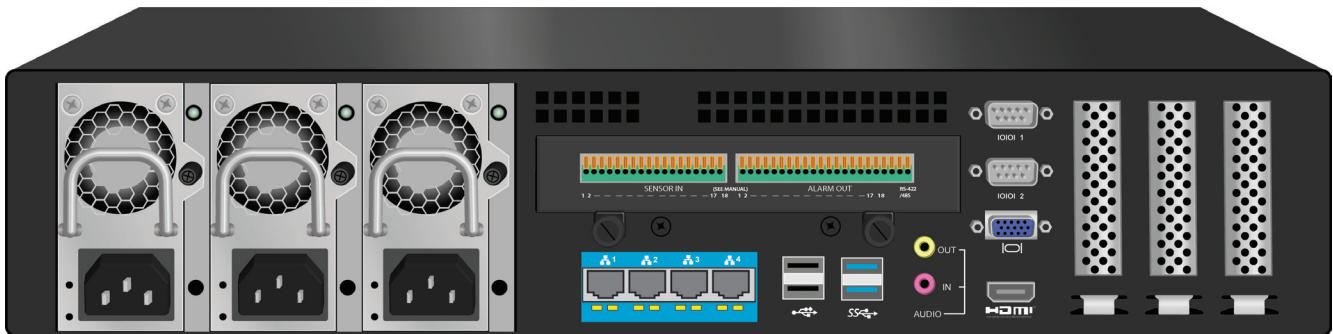
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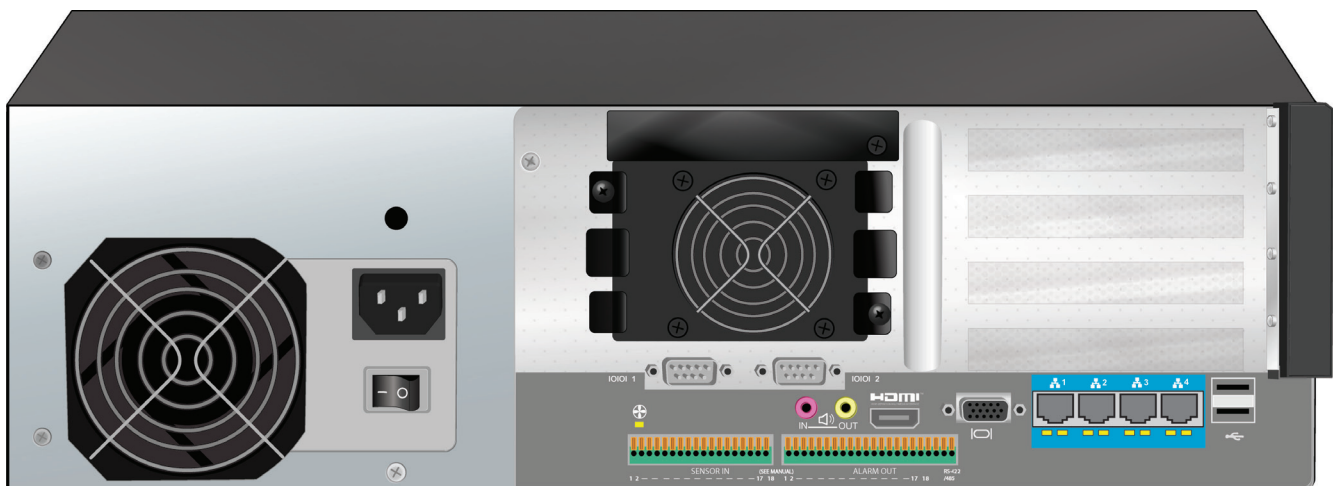
INTRODUCTION

This document answers questions that PROMISE customers might have concerning the function of the I/O terminal board available as an option on the Vess A2000 NVR Storage Appliance models.

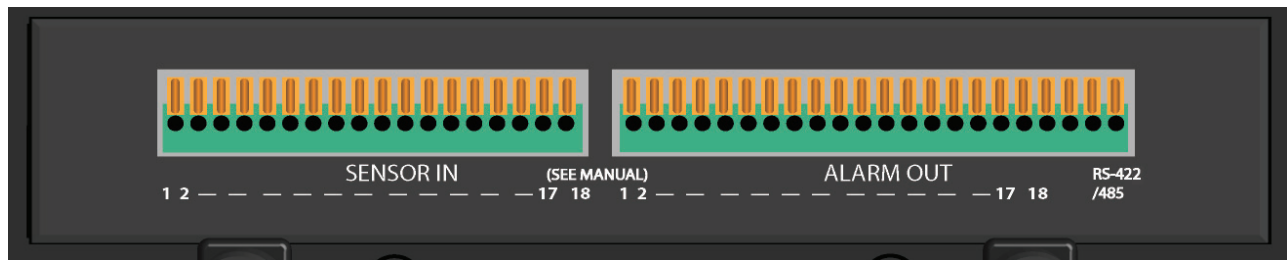
Vess A2200 rear panel



Vess A2600 rear panel



I/O terminal interface



I/O Terminal Board Features

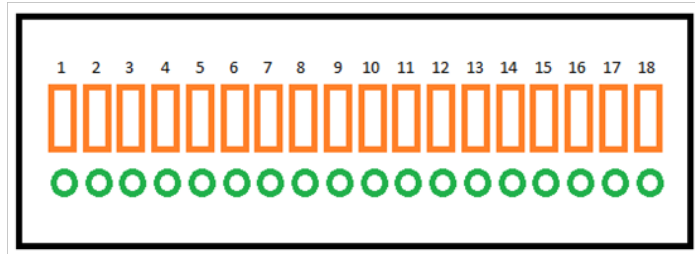
- Supports 8 input sensors, 8 output alarms and a RS-422/485 interface.
- **Sensor Input Connector:** Connect sensor input lines. An external device issues a warning to the I/O terminal board controller.
- **Alarm Output Connector:** Connect alarm output lines. Used to send pre-defined alarm signals.

Pin Assignments

Sensor Input Connector

Pin Number SENSOR IN

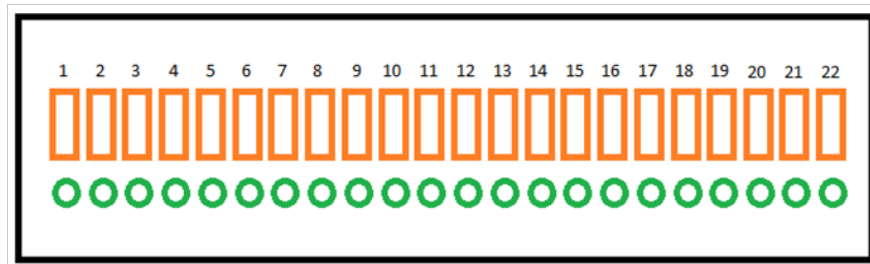
1	3.3V
2	IN_8 -
3	IN_8 +
4	IN_7 -
5	IN_7 +
6	IN_6 -
7	IN_6 +
8	IN_5 -
9	IN_5 +
10	IN_4 -
11	IN_4 +
12	IN_3 -
13	IN_3 +
14	IN_2 -
15	IN_2 +
16	IN_1 -
17	IN_1 +
18	GND



Alarm Output Connector

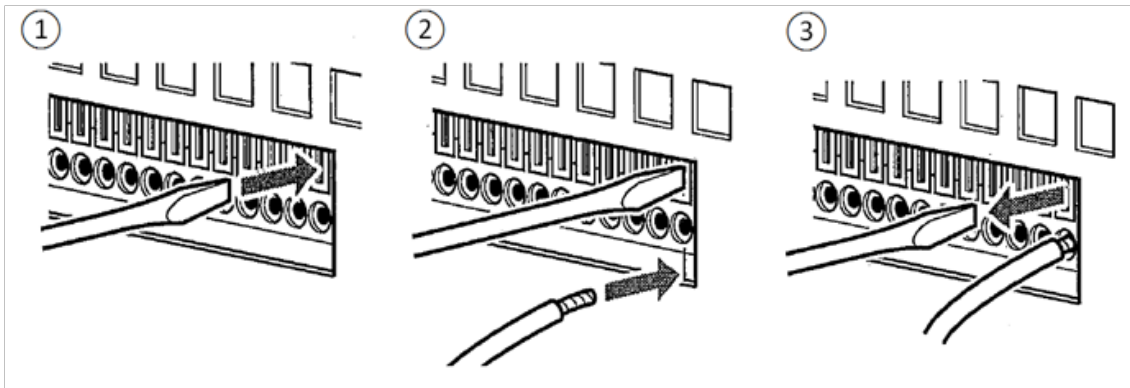
Pin Number ALARM OUT

1	GND
2	OUT_8 -
3	OUT_8 +
4	OUT_7 -
5	OUT_7 +
6	OUT_6 -
7	OUT_6 +
8	OUT_5 -
9	OUT_5 +
10	OUT_4 -
11	OUT_4 +
12	OUT_3 -
13	OUT_3 +
14	OUT_2 -
15	OUT_2 +
16	OUT_1 -
17	OUT_1 +
18	GND
19	RS-422/485 TX -
20	RS-422/485 TX +
21	RS-422 RX -
22	RS-422 RX +



How to use the I/O Receptacle

Insert a small flat-head screwdriver into the slot above the hole you want to connect. Hold the screwdriver in place and insert the wire, then release the screwdriver. See illustration below.



Operation Examples

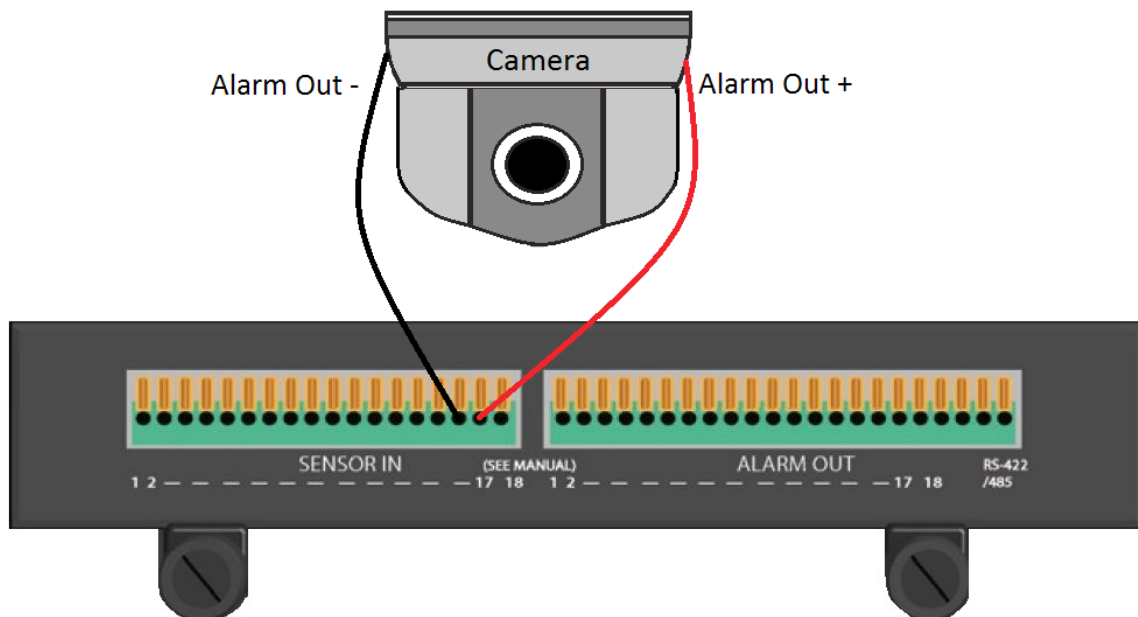
Below are examples of how to connect and check the status for devices used with the I/O terminal board.

Sensor Input Connection

The illustration below is used as an example. In this example a motion sensing camera is connected.

- Connect the **SENSOR_IN +** on the Vess I/O terminal interface with an external camera **Alarm Out +** (Red wire in illustration)
- Connect the **SENSOR_IN -** on the Vess I/O terminal interface with an external camera **Alarm Out -** (Black wire in illustration)

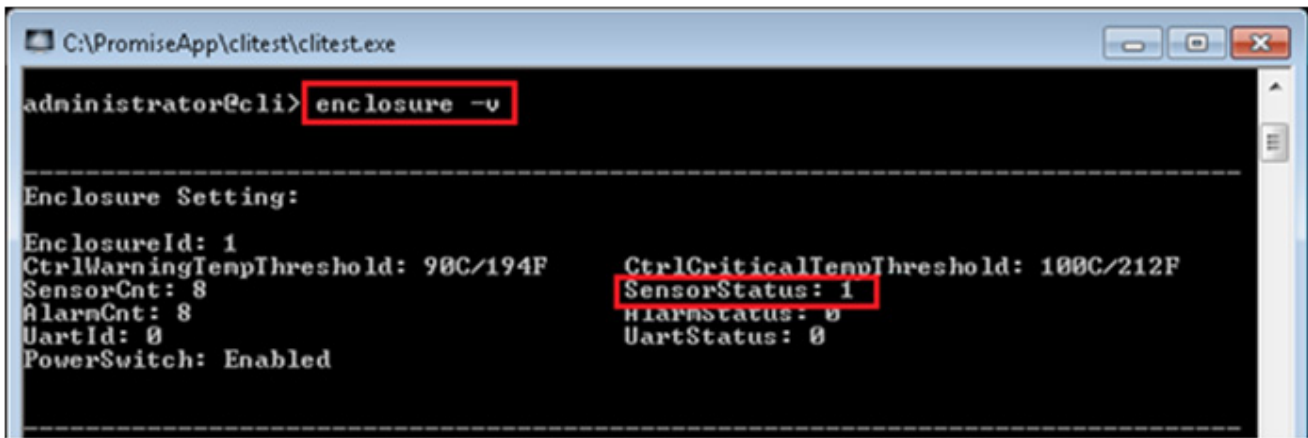
See “Sensor Input Connector” on page 3 for pin assignments.



Check Sensor Input Status in CLI

To check the status for the device that issues a warning to the terminal board. Follow these steps:

1. Open the CLI interface, type **<enclosure -v>** the sensor status displays.



```
C:\PromiseApp\clitest\clitest.exe
administrator@cli> enclosure -v

-----
Enclosure Setting:
EnclosureId: 1
CtrlWarningTempThreshold: 90C/194F
SensorCnt: 8
AlarmCnt: 8
UartId: 0
PowerSwitch: Enabled
CtrlCriticalTempThreshold: 100C/212F
SensorStatus: 1
AlarmStatus: 0
UartStatus: 0
-----
```

2. The Sensor Status displayed is dependant on the input pair that is used on the Sensor Input interface. For example, the Input 4 pair (IN_4+ and IN_4-) displays *Sensor Status 247*.

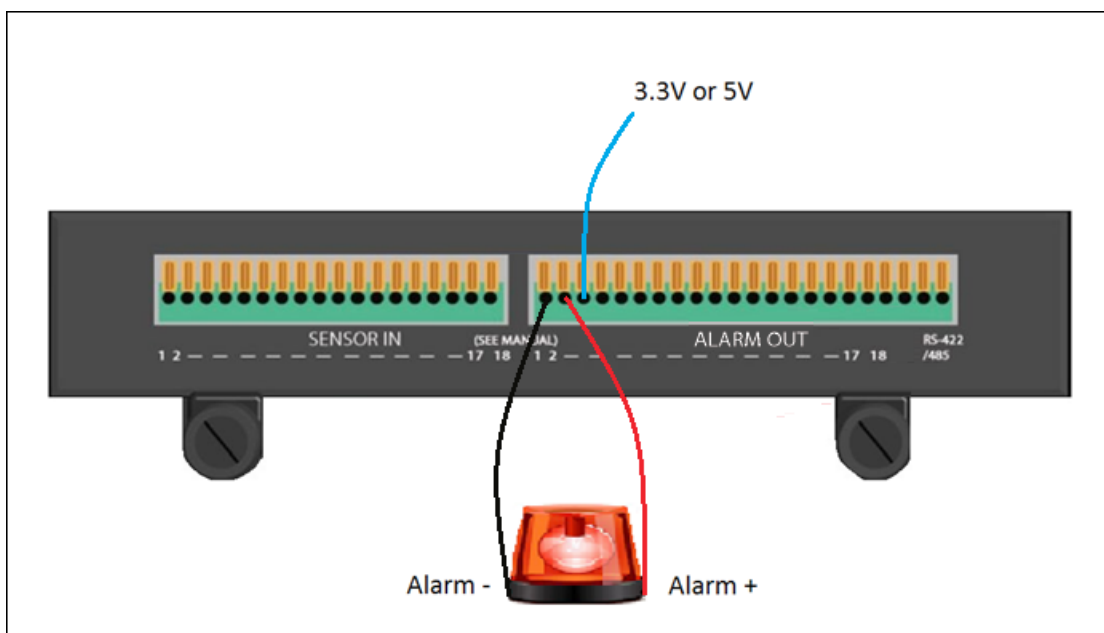
Use the value to calculate which pair is connected to a camera or alarm. Use the tables on pages 14 and 15 in “FAQ”.

Alarm Output Connection

The illustration below is used as an example. The example used is an alarm.

- Connect the **ALARM_OUT +** on the I/O terminal interface to the 3.3V or 5V connection on the external alarm device (Blue wire in illustration)
- Connect the **ALARM_OUT -** on the I/O terminal interface to the **Input +** connection on the external alarm device (Red wire in illustration)
- Connect the **ALARM_GND** - on the I/O terminal interface to the **Input -** connection on the external alarm device (Black wire in illustration)

See “Alarm Output Connector” on page 4 for pin assignments.

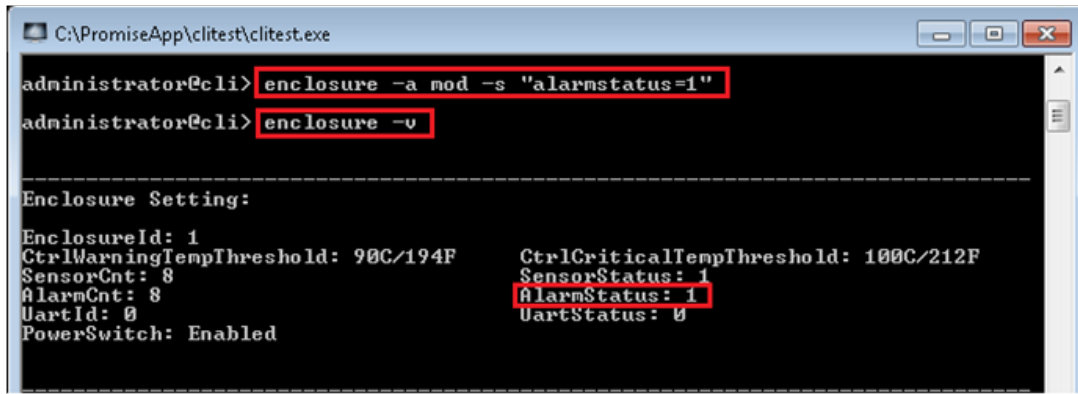


Enable sensor output in CLI

To enable the alarm connected to the sensor device, that is, to enable the ability of the terminal board send a signal to the alarm when the sensor device is triggered, follow these steps:

1. Open the CLI interface, type

<enclosure -a mod -s "alarmstatus=1">



The screenshot shows a terminal window titled "C:\PromiseApp\clitest\clitest.exe". The prompt is "administrator@cli>". The first command entered is "enclosure -a mod -s \"alarmstatus=1\"", which is highlighted with a red box. The second command entered is "enclosure -v", also highlighted with a red box. Below the commands, the output shows "Enclosure Setting:" followed by a list of settings. The "AlarmStatus" is set to "1" and is highlighted with a red box. Other settings include "EnclosureId: 1", "CtrlWarningTempThreshold: 90C/194F", "CtrlCriticalTempThreshold: 100C/212F", "SensorCnt: 8", "SensorStatus: 1", "UartId: 0", "UartStatus: 0", and "PowerSwitch: Enabled".

```
C:\PromiseApp\clitest\clitest.exe
administrator@cli> enclosure -a mod -s "alarmstatus=1"
administrator@cli> enclosure -v

-----
Enclosure Setting:
EnclosureId: 1
CtrlWarningTempThreshold: 90C/194F    CtrlCriticalTempThreshold: 100C/212F
SensorCnt: 8                          SensorStatus: 1
AlarmCnt: 8                           AlarmStatus: 1
UartId: 0                             UartStatus: 0
PowerSwitch: Enabled
```

2. To check the Alarm Status, type **<enclosure -v>**

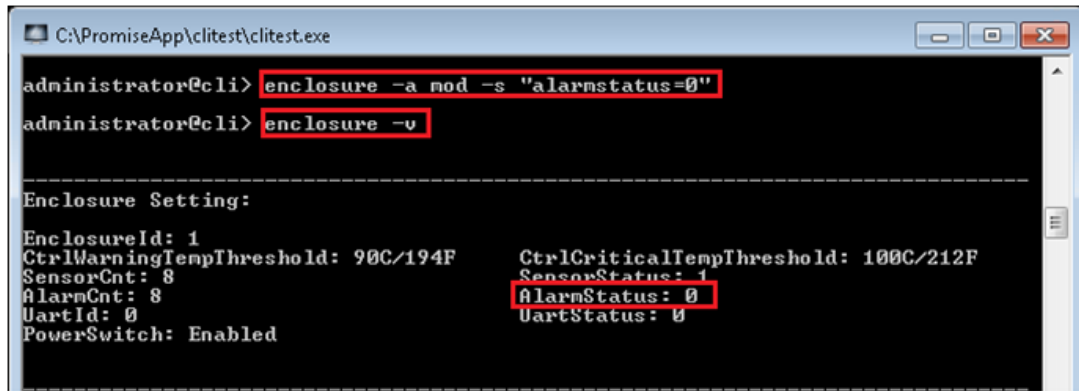
Change the Alarm Status to enable or disable the connected external alarm device.

See "FAQ" on page 14 for more information.

Disable Alarm Device

To disable the alarm device:

1. Open CLI and type `<enclosure -a mod -s "alarmstatus=0">`
2. Type `<enclosure -v>` and it will displays the **alarmstatus**.



The screenshot shows a command-line interface window titled "C:\PromiseApp\clitest\clitest.exe". The prompt is "administrator@cli>". The first command entered is `enclosure -a mod -s "alarmstatus=0"`, which is highlighted with a red box. The second command entered is `enclosure -v`, also highlighted with a red box. The output shows the "Enclosure Setting:" with various parameters. The "AlarmStatus" is highlighted with a red box and shows a value of 0.

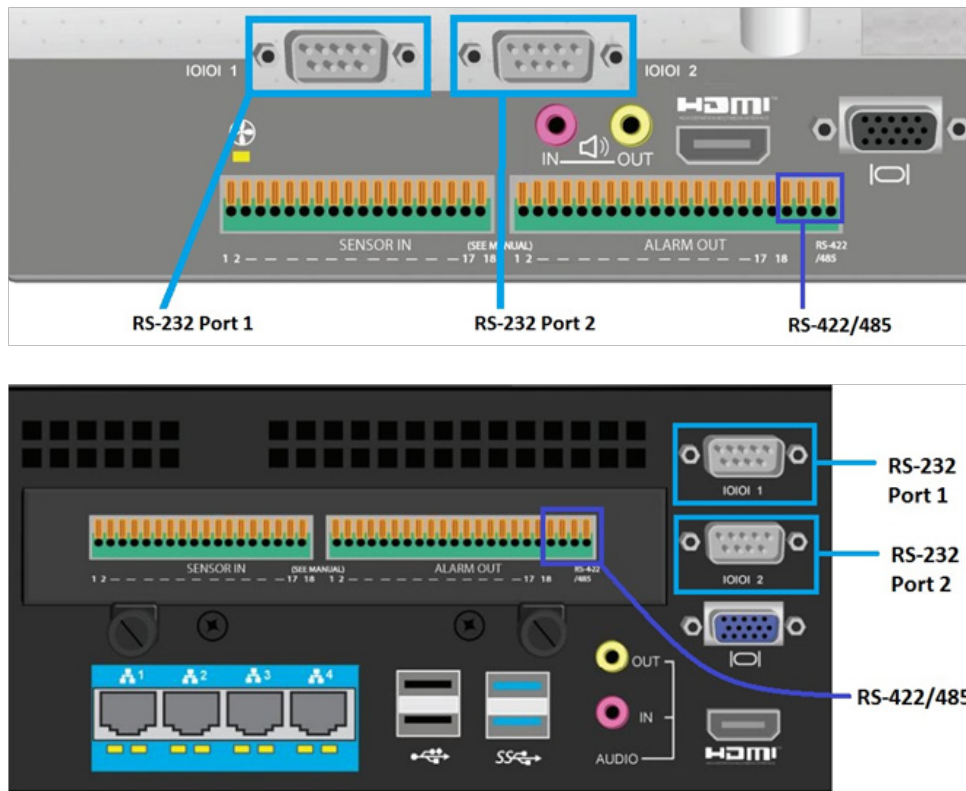
```
C:\PromiseApp\clitest\clitest.exe
administrator@cli> enclosure -a mod -s "alarmstatus=0"
administrator@cli> enclosure -v

-----
Enclosure Setting:
EnclosureId: 1
CtrlWarningTempThreshold: 90C/194F
SensorCnt: 8
AlarmCnt: 8
UartId: 0
PowerSwitch: Enabled
CtrlCriticalTempThreshold: 100C/212F
SensorStatus: 1
AlarmStatus: 0
UartStatus: 0
-----
```

Connecting an Analog Cameras with RS-232/422/485 ports

These are important points to keep in mind when using or connecting and using analog cameras.

- Only one connector can be used at one time: **RS-232C**, **RS-422**, or **RS-485**
- For **pan**, **tilt** and **zoom** operations, connect a camera control cable to RS-232 connector or the RS-422/485 connector (four rightmost pins on the alarm output connector).



- **RS-232 Port 1** : This is used for control line connection to an uninterruptible power supply (UPS).
- **RS-232 Port 2** : Use this to connect to analog cameras via the analog camera input cable.
Note: This connector cannot be used at the same time as the RS-422/485 connector.
- **RS-422/RS-485** : Use this to connect to analog cameras via the analog camera input cable.
Note: This connector cannot be used at the same time as the RS-232 connector.

Configure connection in CLI

Configure RS-232 (Port 2)

Choosing this option enables the RS-232 port and disables the RS-422/485 port on the terminal board.

1. Open CLI and type `<enclosure -a mod -s "uartstatus=0">`
2. Type `<enclosure -v>` and it will displays the **UartStatus**.

```
administrator@cli> enclosure -a mod -s "uartstatus=0"
administrator@cli> enclosure -v

-----
Enclosure Setting:
EnclosureId: 1
CtrlWarningTempThreshold: 90C/194F      CtrlCriticalTempThreshold: 100C/212F
SensorCnt: 8                          SensorStatus: 255
AlarmCnt: 8                          AlarmStatus: 0
UartId: 0                             UartStatus: 0
PowerSwitch: Enabled
```

Configure RS-422/485 (I/O Terminal Board)

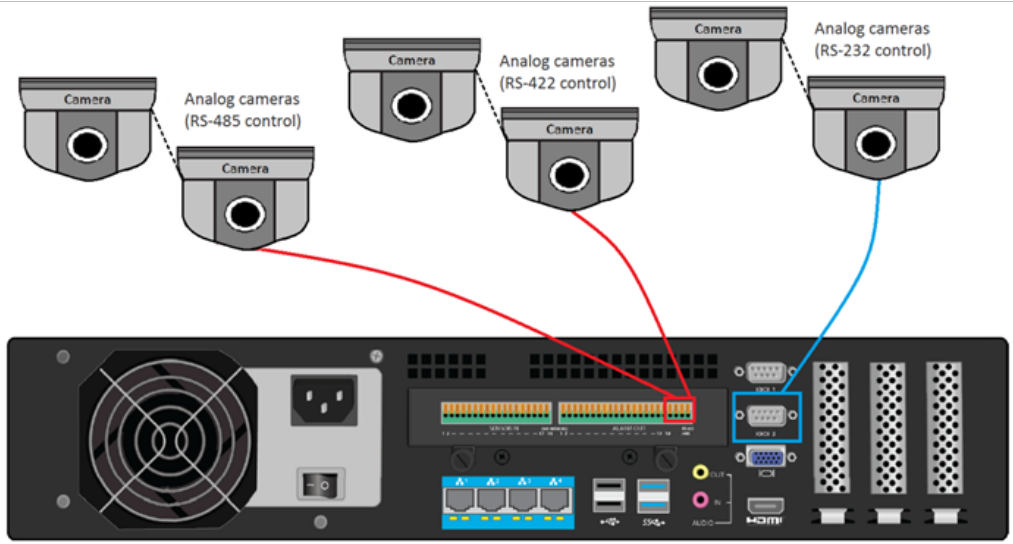
Choosing this option enables the RS-422/485 port on the terminal board and disables the RS-232 port.

1. Open CLI and type `<enclosure -a mod -s "uartstatus=1">`
2. Type `<enclosure -v>` and it will displays the **UartStatus**.

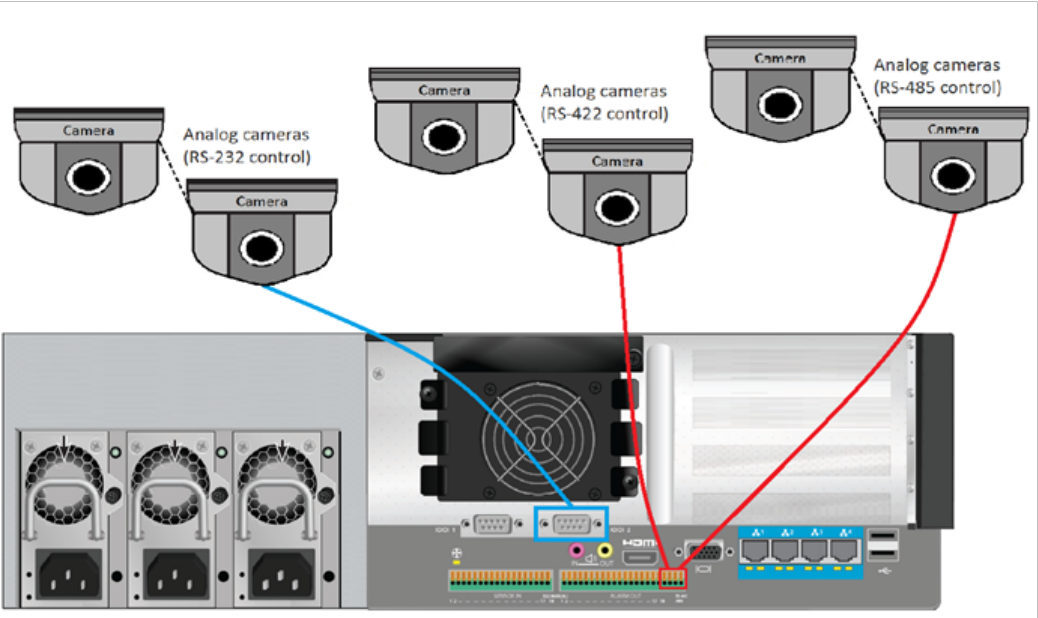
```
administrator@cli> enclosure -a mod -s "uartstatus=1"
administrator@cli> enclosure -v

-----
Enclosure Setting:
EnclosureId: 1
CtrlWarningTempThreshold: 90C/194F      CtrlCriticalTempThreshold: 100C/212F
SensorCnt: 8                          SensorStatus: 255
AlarmCnt: 8                          AlarmStatus: 0
UartId: 0                             UartStatus: 1
PowerSwitch: Enabled
```

Illustrated Connection -Vess A2200



Illustrated Connection - Vess A2600



FAQ

Q1: How can I know which device has an input signal (Sensor Status = *Enable*) to I/O terminal board controller from sensor status in CLI?

A: Use this table to determine which camera is sending the warning (Sensor Status = *Enable*).

Note that when the *Sensor Status* in the CLI is “0”, indicates signal input on all SENSOR IN; a *Sensor Status* of “1” indicates SENSOR IN 2, 3, 4, 5, 6, 7 and 8 have signal input; SENSOR IN 1 (2^0) has no signal input.

Example #1

Sensor Status is “72” in CLI.

- 2^6 plus 2^3 equals 72=> SENSOR IN_7 and SENSOR IN_4 have no input signal (i.e. Sensor Status = *Disable*).
- All other SENSOR IN (1, 2, 3, 5, 6, 8) have input signals. (i.e. Sensor Status = *Enable*).

Example #2

Sensor status is “255” in CLI .

- All SENSOR IN (1, 2, 3, 4, 5, 6, 7, 8) have no input signals. (i.e. Sensor Status = *Disable*).

Pin No.	SENSOR IN	Sensor Status	
		Enable	Disable
2	IN_8 -	0	2^7
3	IN_8 +		
4	IN_7 -	0	2^6
5	IN_7 +		
6	IN_6 -	0	2^5
7	IN_6 +		
8	IN_5 -	0	2^4
9	IN_5 +		
10	IN_4 -	0	2^3
11	IN_4 +		
12	IN_3 -	0	2^2
13	IN_3 +		
14	IN_2 -	0	2^1
15	IN_2 +		
16	IN_1 -	0	2^0
17	IN_1 +		

Q2: How can I know which external alarm issues a warning (Alarm Status = *Enable*) from alarm status in CLI?

A: Use this table that you can calculate which external alarm is warning (Alarm Status = *Enable*).

Note that when the *Alarm Status* in the CLI is “0”, indicates warning on all ALARM_OUT; an *Alarm Status* of “1” indicates ALARM_OUT 2, 3, 4, 5, 6, 7 and 8 have signal input; ALARM_OUT (2^0) has no warning.

Example #1

Alarm Status is “129” in CLI.

- 2^7 plus 2^0 equals 129 => ALARM_OUT_8 and ALARM_OUT_1 have no warning

Example #2

Alarm status is “255” in CLI .

- No warning (signal output) on all alarms.

Pin No.	ALARM OUT	Alarm Status	
		Enable	Disable
2	OUT_8 -	0	2^7
3	OUT_8 +		
4	OUT_7 -	0	2^6
5	OUT_7 +		
6	OUT_6 -	0	2^5
7	OUT_6 +		
8	OUT_5 -	0	2^4
9	OUT_5 +		
10	OUT_4 -	0	2^3
11	OUT_4 +		
12	OUT_3 -	0	2^2
13	OUT_3 +		
14	OUT_2 -	0	2^1
15	OUT_2 +		
16	OUT_1 -	0	2^0
17	OUT_1 +		

