

Single Channel Digital Video Recorder

Models: DGR100/DGR101

Installation / User Manual



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|---|
| <p>THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: 1. THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND 2. THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDERSIRED OPERATION.</p> |
|---|

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at one's own expense.

CAUTION: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.



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Important Safety Instructions

All the safety and operating instructions should be read before the appliance is operated. The improper operation may cause irreparable damage to the appliance.

- Please lift and place this equipment gently.
- Do not expose this equipment under to direct sunlight.
- Do not use this equipment near water or in contact with water.
- Do not spill liquid of any kind on the equipment.
- Do not unplug the power connector before turn the power off correctly.
- This equipment should be operated using only the power source from standard package.
- Unauthorized repair or parts substitutions may result in fire, electric shock or other hazards.
- Do not switch the Power On & Off within short period (within 3 seconds).
- Do not attempt to service this equipment by yourself. Refer all servicing to qualified service personnel.
- This unit should be operated only from the type of power source indicated on the manufacturer's label.
- This installation should conform to all local codes.

| | | | | |
|--|---|----------------|---|---|
|  | <table border="1"><tr><td>CAUTION</td></tr><tr><td>RISK OF ELECTRIC SHOCK. DO NOT OPEN.</td></tr></table> | CAUTION | RISK OF ELECTRIC SHOCK. DO NOT OPEN. |  |
| CAUTION | | | | |
| RISK OF ELECTRIC SHOCK. DO NOT OPEN. | | | | |
| CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL. | | | | |

Introduction

The DGR100/101 Digital Video Recorder (DVR) converts analog video to digital images and records them on a removable hard disk drive.

The DVR offers many advantages over traditional time lapse VCR's, allowing you to quickly access and search for a specific time segment or event which has been recorded. This high quality recorded video can be viewed at various playback speeds as well as frame-by-frame with the Jog Button feature. All this without the need to replace video tapes.

To learn more about Digimerge products, please visit our website at www.digimerge.com.

Features

- Up to 45 Hour Real Time / 2755 Hour Time Lapse Recording (with 120 GB HDD)
- Multiplexer compatible (most models)
- On Screen Display and Real Time Clock Function
- High Quality Picture with Wavelet Compression Format
- 4 Adjustable Video Quality Settings
- Manual, Alarm, and Timer record options
- Search by Time, Event, or Alarm list
- Fast / slow forward and reverse searching function
- Security password protection
- Supports 20-120 GB HDD
- Alarm I/O terminal block
- RS232C communication port
- Automatic video loss detection
- Emergency back up battery feature

System Contents

The DGR100/101 box should include the items listed below. Please take a moment to verify that no items are missing from the package.



Single channel DVR



Alarm Block



Hard Disk Drive
(not included with all models)



Installation / User
Manual



2 Keys for
Hard Drive Cartridge



Power Adapter and Cord

NOTE: KEEP THE KEYS IN A SAFE PLACE. THEY ARE NECESSARY FOR INSTALLATION / REMOVAL OF THE HARD DISK DRIVE.

Getting Started

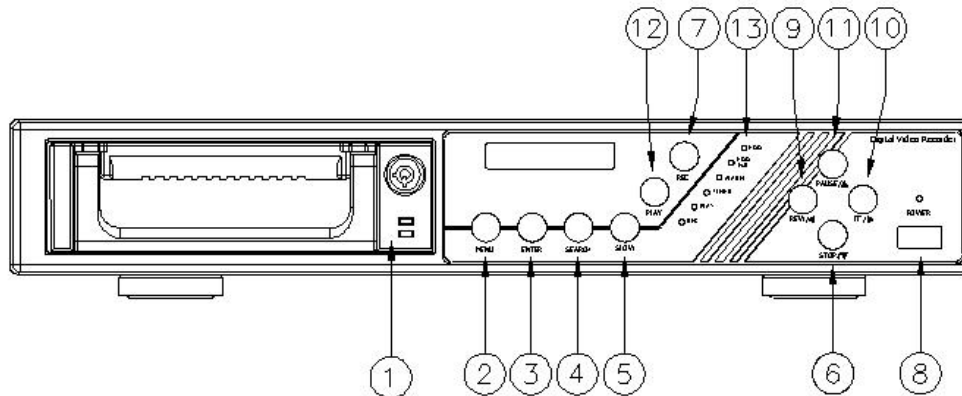
If the purchased DVR model did not contain a hard disk drive, please refer to Appendix #1 for HDD installation instructions.


1. Connect video sources and monitor(s) following one of the configuration examples shown in Appendix # 2.
2. Connect the AC Power Cord to the Power Adapter and plug into an electrical outlet. A Red LED indicator light will be ON to indicate that the DVR is in Standby mode.
3. Press the Power button. The POWER LED will turn from red to orange, and other red LED indicators will turn ON. Note: the system takes approximately 5 to 15 seconds to power up. During the power-up, you will see the following messages: "HDD Detecting", followed by "Master HDD Connected".

Once connected, the POWER LED will change to green, and red indicator lights be ON next to the Alarm and Timer buttons.

NOTE: IF YOU GET THE MESSAGE "HDD NOT FOUND", PLEASE SEE APPENDIX #1 AS THE HDD IS LIKELY NOT INSTALLED CORRECTLY.

Front Panel Controls



1. **Removable Cartridge Casing.**
The DVR comes with a removable hard disk drive tray.
2. **MENU**
Press **MENU** to enter the Main Menu. You will be prompted for a password upon pressing the **MENU** button. Please see section entitled 'Accessing the Menu' for further information
3. **ENTER**
Press **ENTER** for confirmation when making selections in Menu mode.
4. **SEARCH**
The **SEARCH** feature allows you to find recorded video. You can search video recordings by Time, Date, or Alarm. Please see the 'Video Search' area under 'System Operation for more information.
5. **SLOW**
Press **SLOW** to slow down the speed of Play mode. It can also be used to slow down the speed of Fast Forward and Rewind.
6. **STOP / ▼**
(i) Pressing **STOP** terminates recording or playing. The DVR returns to live monitoring mode and stops all other actions.
(ii) In Menu mode, the button is used to scroll Down through options.
7. **REC**
Press **REC** to start recording. The  icon will appear in the top-right corner of the screen when recording is in progress.
8. **POWER**
Press **POWER** to turn the DVR system ON and OFF.
9. **REW / ◀**
The **rewind** button serves two functions:
(i) Pressing **REW** plays video backwards at a high speed.
(ii) In Menu mode, the button is used to scroll Left through options.
10. **FF / ▶**
The **fast-forward** button serves two functions:
(i) Pressing **FF** plays video forwards at a high speed.
(ii) In Menu mode, the button is used to scroll Right through options.
11. **PAUSE / ▲**
The **PAUSE** button serves two functions:
(i) Pressing **PAUSE** pauses the recorded video being played on screen.
(ii) In Menu mode, the button is used to scroll Up through options.

12. PLAY

Press **PLAY** to play recorded video. The DVR will play the last recorded video by default.

13. LED LIGHTS

Under the following condition, the Red LED Light is ON.

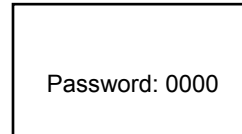
- (1) HDD: blinks on startup after HDD is activated
 - (2) HDD Full: HDD has reached its capacity in memory
 - (3) ALARM: LED blinks during an alarm, remains ON when Alarm feature is set to "Enabled" in the Menu
 - (4) TIMER: remains ON when Timer feature is set to "Enabled" in the Menu
 - (5) PLAY: during Play operation
 - (6) REC: during Recording operation
-

Accessing the Menu

The Menu allows you to configure your DVR settings and program various recording options. Follow these steps in order to access the Menu:

Press the **MENU** button. The password screen will appear:

The default Password is 0000. If you have not yet programmed or changed it. In this case, you can simply press the Enter button to access the Menu.



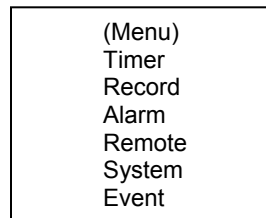
To change the number of the Password, use the ◀ and ▶ buttons to scroll between numbers, and use the ▲ and ▼ buttons to change the value of the number that is blinking.

Press the **ENTER** button once the correct Password is entered. The menu options screen will appear. Note: If you get a message "Password Error", you have entered an incorrect password.

Main Menu

There are 6 options available in the Main Menu:

Timer: Programs specific times that you want the DVR to record
Record: Controls the speed, quality and mode of recording
Alarm: Programs Alarm duration and recording during an Alarm
Remote: Chooses interface for remote protocol via computer
System: Sets the date, chooses an HDD overwrite setting, changes Password, resets system settings, or clears the HDD
Event: Allows you to view video from a list of recorded events



Navigating the Menu:

▲ and ▼: Scroll up and down through menu options; change values when an option is selected and is blinking

◀ and ▶: Scroll sideways within a menu option that has been selected

ENTER: Selects a submenu / an option in a submenu for browsing / modification

MENU: Completes modification of a menu option; exits a menu

NOTE: The Menu setup will timeout after 1 minute of no key presses.

System Set Up

From the Main Menu, select System then press **ENTER**.

```
(System)
▶ Buzzer : On
  HDD Overwrite : No
  Message Latch: On
  Date Display : Y- M - D
  Date : 2002-JUL-14(SUN)
  Time : 22:38:29
  New Password : xxxx
  Clear HDD : No
  System Reset : No
```

Setting the Internal Alarm Buzzer

To enable or disable the internal alarm buzzer:

1. On the System screen, press **▲** or **▼** to select Buzzer, then press **ENTER**.
2. Press **▲** or **▼** to enable or disable the internal alarm buzzer. Options are:
ON = Buzzer is on. When the DVR detects an alarm trigger a buzzer sounds to alert the user.
OFF = Buzzer is off.
3. Press **MENU** to confirm your change.
4. Press **▲** or **▼** to move to another field on the System screen or press **MENU** to exit.

Setting the Hard Drive Overwrite

Use this option to select whether recording will stop when the hard disk is full or whether it will start writing over previous recordings.

1. On the System screen, press **▲** or **▼** to select HDD Overwrite, then press **ENTER**.
2. Press **▲** or **▼** to enable or disable the hard drive overwrite option. Options are:
YES = The DVR will overwrite the data on the hard drive when the disk is full.
NO = The DVR will stop recording when the drive is full.
3. Press **MENU** to confirm your change.
4. Press **▲** or **▼** to move to another field on the System screen or press **MENU** to exit.

System Time/Date Set up

Setting System Date

1. On the System screen, press ▲ or ▼ to select Date, then press **ENTER**.
2. Press ▲ or ▼ to choose a number, then press ◀ or ▶ to move to the next digit:
2002-JUL-17 (SUN), YY-MM-DD (Day)
3. Press **MENU** to confirm your change.
4. Press ▲ or ▼ to move to another field on the System screen or press **MENU** to exit this screen and confirm the current operation.

Setting System Time

1. On the System screen, press ▲ or ▼ to select Time, then press **ENTER**.
2. Press ▲ or ▼ to choose a number, then press ◀ or ▶ to move to the next digit:
Time: 22:38:29 HH:MM:SS; Hour, Minute, Second
3. Press **MENU** to confirm your change.
4. Press ▲ or ▼ to move to another field on the System screen or press **MENU** to exit this screen and confirm the current operation.

Selecting the Time/Date Display Format

1. On the System screen, press ▲ or ▼ to select Date Display, then press **ENTER**.
2. Press ▲ or ▼ to choose a display format. Options are:
Y-M-D = Year - Month - Day
M-D-Y = Month - Day - Year
D-M-Y = Day - Month - Year
Off = The date and time will not show on the screen.
3. Press **MENU** to confirm your change.
4. Press ▲ or ▼ to move to another field on the System screen or press **MENU** to exit this screen and confirm the current operation.

Changing the System Password

1. On the System screen, press ▲ or ▼ to select New Password, then press **ENTER**.
2. Press ▲ or ▼ to choose a number, then press ◀ or ▶ to move to the next digit.
3. Press **MENU** to confirm your change.
4. Press ▲ or ▼ move to another field on the System screen or press **MENU** to exit this screen and confirm the current operation.
5. If you have completed all your system configuration changes, press **MENU** again to exit and close menu setup.

Clearing the Hard Drive Data

This option will erase all data from the hard drive. **Ensure that there are no important recordings on the disk before using this option.**

1. On the System screen, press ▲ or ▼ to select Clear HDD, then press **ENTER**.
2. Press ▲ or ▼ to choose YES to clear the HDD or NO to leave as is.
3. When you choose “Yes” on this option and press **ENTER**, it will prompt:
4. Press ► to confirm clearing, or ◀ to cancel.
5. Press **MENU** to confirm your change.
6. Press ▲ or ▼ to move to another field on the System screen or press **MENU** to exit this screen and confirm the current operation.

| |
|--|
| All Data in HDD Will Be Cleared Are you sure? (◀ : No ► : Yes) |
|--|

Resetting System to Factory Defaults

Using the System Reset option will set all options back to factory default settings. Use the steps below to perform this option.

1. On the System screen, press ▲ or ▼ to select **System Reset**, then press **ENTER**.
2. Press ▲ or ▼ to choose:
Yes = Confirm the system reset and load the default settings.
No = Do not reset the system at this time.
3. Press **MENU** to exit this screen and confirm the current operation.
4. If you have completed all your system configuration changes, press **MENU** again to exit and close menu setup.

Other Menu Options

Timer Recording Setup

On the Main menu, selecting the Timer option will allow you to set daily schedules in which you would like the DVR to automatically record.

Pressing **ENTER** after scrolling to the Timer option will bring up the following menu options:

```
(Menu)
▶ Timer
  Record
  Alarm
  Remote
  System
  Event
```

TIMER

Day – Select the day, or days (Mon-Fri / Sat-Sun / Daily) of the week that you wish to automatic recording to occur.

Start – Select the starting time for the recording.

End – Select the finishing time for the recording.

IPS – Images per second – see Record Settings submenu for more details.

Timer Enable – Enables / disables Timer recording to function.

| (Timer) | | | | |
|---------------|-------|-------|-----|--|
| Day | Start | End | IPS | |
| Daily | 01:00 | 02:00 | Off | |
| SUN | 12:00 | 13:00 | Off | |
| MON | 08:00 | 09:00 | Off | |
| MO~FR | 00:00 | 01:00 | Off | |
| SA~SU | 20:00 | 21:00 | Off | |
| JAN-01 | 15:00 | 16:00 | Off | |
| Timer Enable: | | | No | |

NOTE: WHEN THE TIMER IS SET, THE REC LED INDICATOR WILL BE ON. ALTHOUGH THE LIGHT MAY BE ON, THE SYSTEM IS NOT NECESSARILY RECORDING SINCE IT WILL ONLY RECORD DURING ITS SCHEDULED TIME.

Record Settings

On the Main menu, selecting the Record option will allow you to set the quality and speed of recordings.

Pressing **ENTER** after scrolling to the Record option will bring up the following menu options:

```
(Menu)
  Timer
  ▶ Record
  Alarm
  Remote
  System
  Event
```

Record IPS – Set the system to 60 Images Per Second to record in real time. Other setting options are 30, 15, 8, 4, 2 & 1 IPS. Please refer to Appendix #4 for the different recording times.

```
(Record)
▶ Record IPS: 60
  Record Quality: Normal
  Record Mode: Frame
```

Note: 60 IPS is equivalent to 30 Frames Per Second (FPS). 1 IPS is equal to 0.5 FPS.

Quality – Quality and IPS go “hand-in-hand” as higher quality picture is more attainable when IPS is high.

There are four Quality settings: Basic / Normal / High / Best.

Note: Higher quality settings use larger file sizes thus reducing record time on the HDD.

Record Mode – Sets recording mode between Frame and Field. One frame is equal to two fields. The default setting is Field (*recommended*).

Alarm Setup

On the Main menu, selecting the Alarm option will allow you to set how the system responds to an alarm event (trigger on external alarm input).
Please refer to Appendix 3 for information on connecting an external alarm sensor.

Pressing **ENTER** after scrolling to the Timer option will bring up the following menu options:

```
(Menu)
Timer
Record
▶ Alarm
Remote
System
Event
```

Alarm Enable – Enables / disables the Alarm feature.

Alarm Duration – Set the amount of time for recording to occur during an Alarm. *The Default setting is 1 sec.*
 Available durations available are:
10 sec, 15 sec, 20 sec, 30 sec, 60 sec, 2 min, 3 min, 5 min, 10 min, 30 min, 60 min, Always

```
(Alarm)
▶ Alarm Enable: Yes
Alarm Duration: 1 MIN
Record IPS: 60
Record Quality: High
Record Mode: Frame
```

Record IPS – Sets the Images Per Second of recording during an Alarm. *Default setting is 60 IPS.*
 Available IPS settings are: **60, 30, 15, 8, 4, 2 & 1.**

Record Quality – Sets the Quality of recording during an Alarm.
 Available settings are: Basic, Normal, High and Best

Record Mode – Sets the Record Mode between Frame and Field for recording during an Alarm. *The default setting is Field.*

Remote Protocol Setup

If wishing to control the DVR remotely from a PC over an RS-232/RS-485 connection, this setup menu will allow you to set the basic protocols for that connection.
 Please refer to Appendix 3 for information on the Pin connections and command protocols that would be used in this application.

Pressing **ENTER** after scrolling to the Timer option will bring up the following menu options:

```
(Menu)
Timer
Record
Alarm
▶ Remote
System
Event
```

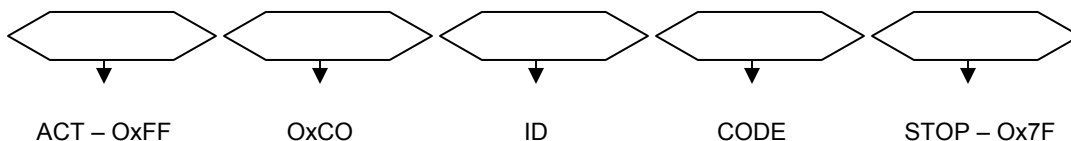
Remote Mode - Selects whether to use an RS-232 or RS-485 interface.

Baud Rate – Selects the Baud rate (bps) to be used for the connection.
 Available settings are: 115200, 57600, 19200, 9600, 3600, 2400, 1200

ID – Selects a numerical number representing the remote protocol ID if required.
 Available setting: 000 – 999

The remote connection on the DVR uses 8 data bits, 1 start bit, and 1 stop bit.

Below is an example of the data stream with the control codes shown.



The table below shows the available keypad functions when using the RS-232/485 controls.

| FUNCTION | CODE | KEY | FUNCTION | CODE | KEY |
|------------|------|-------|--------------|------|-----|
| MENU | 0x4D | M | DOWN / STOP | 0x4E | N |
| ENTER | 0x0D | ENTER | LEFT / F.F. | 0x4C | L |
| SEARCH | 0x48 | H | RIGHT / F.R. | 0x52 | R |
| SLOW | 0x53 | S | PLAY | 0x50 | P |
| UP / PAUSE | 0x55 | U | RECORD | 0x72 | r |

Event Log Viewing

On the Main menu, selecting the Event option will allow you to view a log history of system events.

An "Event" occurs when 1 of 3 incidents occur: a loss in Power, a loss in Video, or a HDD error.

This submenu displays a list of Events that disabled recording in order of their occurrence by Time and Date.

PWR – The time that Power returned after a Power failure.

VLS – The time that the Video input was lost.

HDD – The time that the HDD experienced an error.

◀: Page Up ▶: Page Down – Scroll between pages of Events by pressing the arrow buttons.

| |
|---------|
| (Menu) |
| Timer |
| Record |
| Alarm |
| Remote |
| System |
| ▶ Event |

| | | |
|-------------------------|-------------|----------|
| PWR | 2002-JAN-01 | 03:00:00 |
| VLS | 2002-JAN-01 | 01:02:04 |
| HDD | 2002-JAN-01 | 01:02:03 |
| PWR | 2002-JAN-01 | 01:02:02 |
| VLS | 2002-JAN-01 | 01:02:01 |
| HDD | 2002-JAN-01 | 01:02:00 |
| ◀: Page Up ▶: Page Down | | |

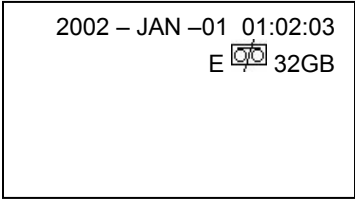
System Operation


On Screen Display (OSD)

The DGR100/101 will display all current status on the OSD.

Here is an example of the display.


The following status will be shown:



2002 – JAN –01 01:02:03
E  32GB

Time and Date – The current time and date will be shown on the first line.

Record Type – The current recording method will be shown:
M= Manual, T= Timer, A= Alarm, E= External Trigger

Record Status – A  icon will be displayed when the unit is currently recording

HDD Status – This will display either the remaining HDD capacity in GB or OW to indicate that it is set to Overwrite.

Recording Methods

The DGR100/101 allows multiple recording modes for maximum flexibility. The available recording options are as follows:

1. **Manual Recording** - This is activated by pressing the REC button on the front of the unit. Manual recording will override timed recording.
2. **Timer Recording** - Allows daily scheduled recording times to be set. Refer to the 'Timer Recording Set-up' section for information on how to set schedules.
3. **Alarm Recording** - Using the **AI** input on the included alarm terminal block (terminal 14), a sensor may be connected to set the unit into alarm and activate recording. Refer to Appendix 3 for further information on the alarm block connections.
4. **External Trigger Recording** - Using the **REC START** input on the included alarm block (terminal 6) an external device may be used to trigger recording. Refer to Appendix 3 for more information on the alarm block connections.

Video Search

The DVR allows you to easily find sections of recorded video using the Search feature.

Press the SEARCH button and you will see the following options:

- Last Record:** Plays the last recorded piece of video.
- Full List:** Shows a listing of all recorded video on the HDD, sorted by time.
- Alarm List:** Shows a listing of all recorded video triggered by an Alarm.
- Time Search:** Finds video recorded on a specific date that is entered.

► Last Record
Full List
Alarm List
Time Search

```
► M 2002-JAN-01 01:02:03
M 2002-JAN-01 01:02:03
A 2002-JAN-01 01:02:03
T 2002-JAN-01 01:02:03
E 2002-JAN-01 01:02:03
M 2002-JAN-01 01:02:03
◀: Page Up ▶: Page Down
```

An example of a Full List search is shown on the left.

Note that the date and time appear, along with the letter representing the method of recording that took place.

Simply press ENTER to view a selected piece of video on the list. The DVR will play that video, followed by the next video in chronological order, until it hits the End of the list. You can stop the video at any time by pressing the STOP button.

Playing Back Video

Pressing **PLAY** while in Normal operation will play back the most recently recorded video clip. The controls below will allow you further controls over the playback whether in this mode or when viewing video from the Search mode.

- Fast forward -** Press **PLAY** on the front panel, then press **FF/►** to open the fast forward search screen. Press **FF/►** once to increase the speed to 2X, twice to increase the speed to 4X, and so on. The maximum fast forward speed is 32X.
- Fast Reverse -** Press **PLAY** on the front panel, then press **REW/◀** to open the fast reverse search screen. Press **REW/◀** once to increase the reverse speed to 2X, twice to increase the reverse speed to 4X, and so on. The maximum fast rewind speed is 32X.
- Slow forward -** Press **PLAY** on the front panel, then press **SLOW** for slow play. Press **FF/►** to play images at slow speed (1/2X). Press **FF/►** again to slow the speed to 1/4X. Continue to press **FF/►** to slow down the speed. The minimum slow speed is 1/32X.
- Slow reverse** Press **PLAY** on the front panel, then press **SLOW** for slow forward. Press **REW/◀** to play images slowly forward (1/2X). Press **REW/◀** again to slow the speed to 1/4X. Continue to press **REW/◀** to slow down the speed. The minimum slow forward speed is 1/32X.
- Image Jog** Press **PLAY** on the front panel, then press **PAUSE** to lock the current image on the screen. Press **FF/►** to select single image play. Each time you press **FF/►** the next image will display. Continuing to press **FF/►** will result in forward image by image playback. Pressing **REW/◀** will result in reverse image by image playback.
- Pause** Press **PLAY** on the front panel, then press **PAUSE/▲** to lock the current image on the screen.
- Stop** Press **STOP** on the front panel whenever you want to return the **DVR** to live monitoring mode.

Key Lock

For added security, you can "Lock" the buttons on your DVR. Locking disables the buttons and prevents other people from using the system.

Press **ENTER** and **MENU** at the same time to enable Key Lock.
Press **ENTER** and **MENU** at the same time to disable Key Lock.

Troubleshooting

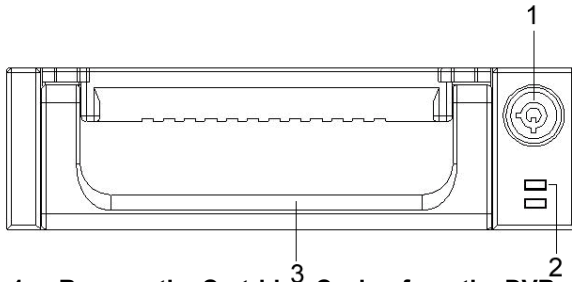
| PROBLEM | POSSIBLE SOLUTION |
|---|---|
| HDD not found | <ul style="list-style-type: none">• Need to insert HDD• Make sure that the HDD Cartridge is locked, then press any key to continue |
| No Power | <ul style="list-style-type: none">• Check the power source cord connections• Check that there is power at the outlet |
| Buttons aren't working when pressed | <ul style="list-style-type: none">• Check if the system is in Key Lock mode• Press MENU and ENTER at the same time to escape the Key Lock mode |
| No recorded video | <ul style="list-style-type: none">• Check that the HDD has been installed correctly |
| Timer / Alarm recording isn't working | <ul style="list-style-type: none">• Check that Timer / Alarm Enable is set to YES |
| No video | <ul style="list-style-type: none">• Check camera's video cables and connections• Check monitor's video cables and connections• Make sure that the camera is receiving power |
| REC LED is ON, but video is not recording | <ul style="list-style-type: none">• It is set in Timer mode and will only record at the scheduled time. |

Technical Specifications

| | |
|-----------------------------------|--|
| HDD STORAGE | IDE type, UTMA 66 above, 1 removable HDD supported, 40 – 120GB |
| AUDIO | Available on DXR1100 / SXR1100 / DGR1100 models only |
| RECORD MODE | Manual / Alarm / External / Timer |
| PLAYBACK SEARCHING | Date & Time / Event / Alarm searching |
| RS232 | Yes |
| O.S.D. (On Screen Display) | Yes |
| SECURITY | Password protected |
| VIDEO INPUT | 1 video input, composite 1 Vp-p / 75ohm (BNC) |
| VIDEO OUTPUT | 1 video output , composite 1 Vp-p/75ohm (BNC) |
| VIDEO RESOLUTION | 720 x 486 |
| VIDEO COMPRESSION | Wavelet |
| DISPLAY REFRESH RATE | 60 ips (NTSC) |
| RECORD REFRESH RATE | 60 ips (NTSC) |
| ALARM INPUT | TTL input, High (5V), Low (GND) |
| ALARM OUTPUT | COM, NO |
| VIDEO LOSS DETECTION | Yes |
| TIME DISPLAY FORMAT | Yes |
| POWER SOURCE | AC90~240V (included) |
| POWER CONSUMPTION | < 27W |
| DIMENSIONS | 14.6" x 10.5" x 2.5" (380 x 270 x 65mm) |
| WEIGHT | 10 lbs (5 kgs) |
| OPERATION TEMPERATURE | 50°F ~ 104°F (10 ~ 40°C) |

Appendix # 1: Hard Drive Installation

The compartment located on the front panel of the DVR is the removable Cartridge Casing where the HDD is inserted. The various parts of the Cartridge Casing are labeled for your reference.

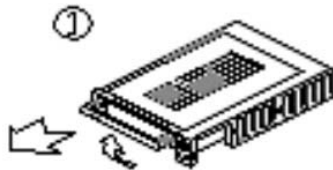


1. Keyhole
2. LED indicator lights
(Power indicator & HDD Access indicator)
3. Handle

1. Remove the Cartridge Casing from the DVR

Lift the Handle and pull towards you. The Cartridge Casing will slide out of the DVR.

NOTE: YOU MAY FIND THAT THE CARTRIDGE CASING IS LOCKED. IN THIS CASE, SKIP AHEAD TO STEP 7 TO FIND INSTRUCTIONS ON UNLOCKING THE CABINET, THEN RETURN TO STEP 2.



2. Remove the Cover from the Cartridge Casing

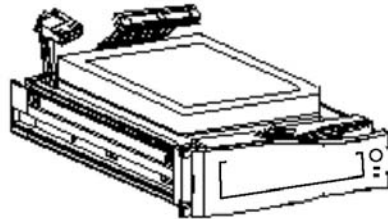
- a) Unclip the release latch with the word "OPEN" printed beside it by gently pushing on the latch.
- b) Slide the cover off the Cartridge Casing.



3. Connect the HDD into the Cartridge Casing

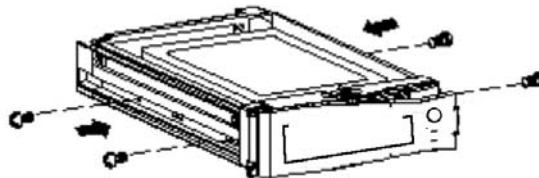
Take the Hard Disk Drive and connect the two cables from the back of the Cartridge Casing to the HDD. The cables should be pushed in firmly, but not forcibly.

NOTE: Ensure that the jumper on the back of the HDD is set to 'Master' or 'CS (Cable Select)'. Please refer to the label on the HDD for the correct settings, as these will vary dependant upon model and manufacturer.



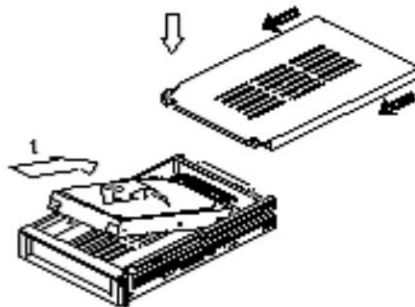
4. Secure the HDD in the Casing (optional)

Insert the six supplied screws (found in empty cartridge) and tighten them, positioning the HDD into place. This step is optional, but it is recommended.



5. Slide the top Cover over the Cartridge Casing

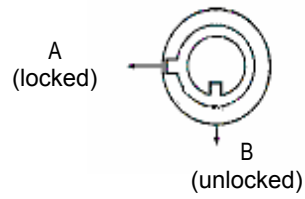
Slide the Cover forward over the Cartridge Case. Ensure it is secured in place over the release latch.



6. Reinsert the Cartridge Casing into the DVR

7. Lock the Cabinet

Lock the cabinet by inserting the supplied key and turning clockwise.



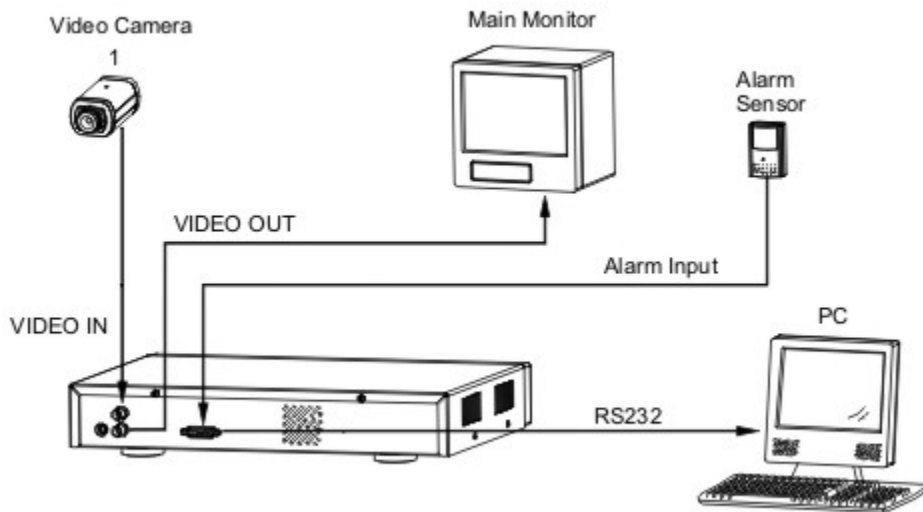
NOTE: IF YOU DO NOT LOCK THE CABINET, THE DVR SYSTEM WILL NOT FUNCTION PROPERLY.

Appendix # 2: Peripheral Video Connections

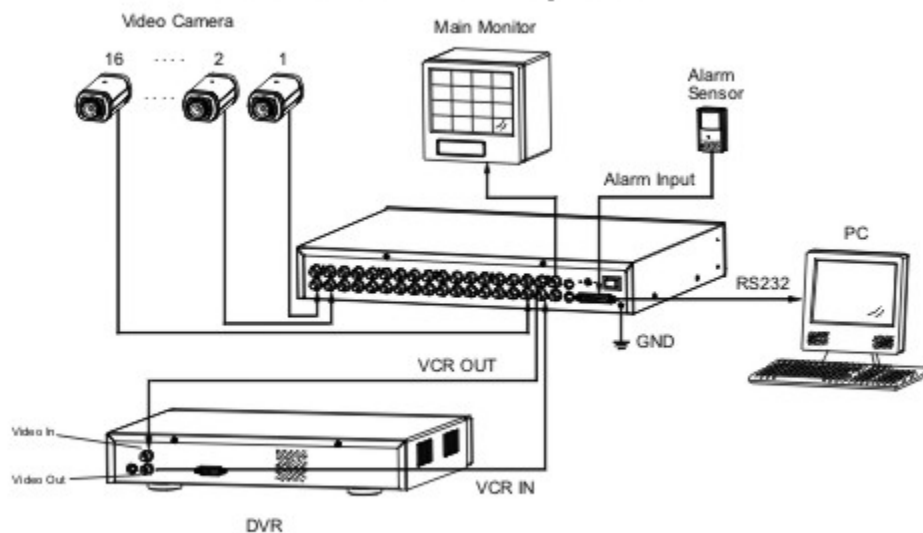
The diagrams below show examples of typical configurations where the following additional equipment may be used:

- Single Video Camera
- Multiple video cameras using a multiplexer.
- Monitor
- Motion alarm sensor
- PC for RS-232 control

Connect with single camera



Connect with Multiplexer



Appendix # 3: External I/O Connections

Rear Panel Connections

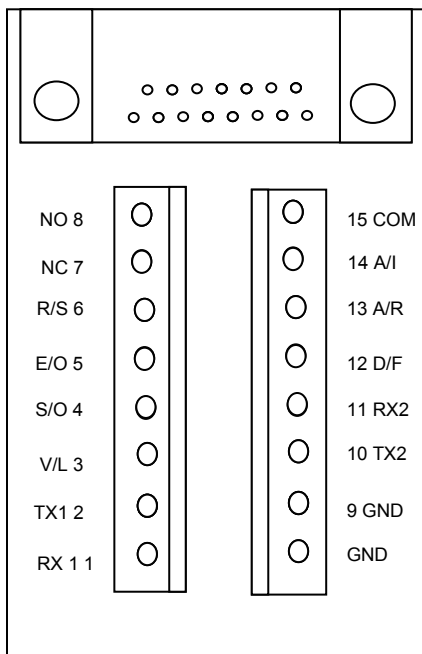


The rear panel has basic connections for Power (4 Pin Din), Video In/Out (BNC connections) and the External I/O port (9 Pin connector). *Audio inputs (RCA inputs) are only available on DGR101 models.*

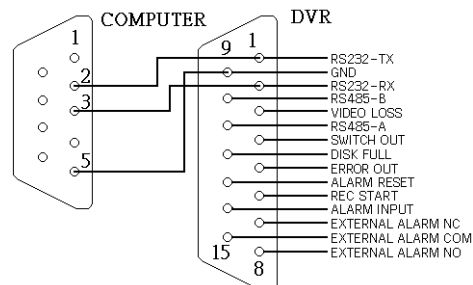
The included alarm block (not shown) allows for easier connections when using external triggers and alarm sensors.

Below are line diagrams of the alarm block and possible RS-232 connections. Appendix 1 shows a detailed description of each Pin/Terminal is provided.

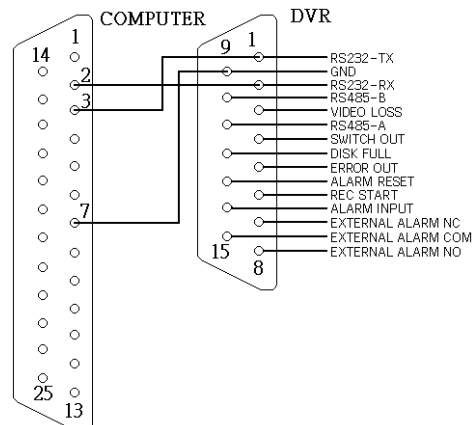
Alarm Block Diagram



9 Pin COM port connections



25 Pin COM port connections



Pin Connections for COM Port and Alarm Block

PIN 1. RS232-TX : RS-232

RS-232 Transmit Data Pin. The DVR can be controlled remotely by an external device or control system, such as a control keyboard or PC using RS-232 serial communication signals.

PIN 2. RS232-RX : RS-232

RS-232 Receive Data Pin. DVR can be controlled remotely by an external device or control system, such as a control keyboard or PC using RS-232 serial communications signals.

PIN 3. VIDEO LOSS

When video loss happens, it will send a signal to trigger another accessory. This pin output becomes "Low" when video loss occurs, and remains "High" under normal operation.

PIN 4. SWITCH OUT

Connect to VCR trigger recording terminal of multiplexer, in order to synchronize recording signals. The default mode is falling (Negative) Edge.

PIN 5. ERROR OUT

When HDD errors happen, this pin will send a signal out. This pin becomes "Low" when HDD errors occur, and remains "High" under normal operation.

PIN 6. REC START

This pin can accept an external trigger signal to activate record mode from an external device. When the external signal turns to "Low", it will trigger DVR record mode. When the external signal goes back to "High", it will stop recording.

PIN 7. EXTERNAL ALARM NC (Normally Closed)

Under normal operation, NC is connected with COM. When an alarm is triggered, COM disconnects with NC (becomes open) for the duration of the alarm. (Form C Relay)

PIN 8. EXTERNAL ALARM NO (Normally Open)

Under normal operation, NO is open with respect to COM. When an alarm occurs, NO is connected to COM (becomes closed) for the duration of the alarm. (Form C relay)

PIN 9. GND (GROUND)

PIN 10. RS485-B

The DVR can be controlled remotely by an external device or control system, such as a control keyboard, using RS485 serial communications signals.

PIN 11. RS485-A

The DVR can be controlled remotely by an external device or control system, such as a control keyboard, using RS485 serial communications signals.

PIN 12. DISK FULL

Under normal operation, this Pin remains "High". When the hard drive is full, this pin will provide a "Low" trigger state. This may be used to trigger a second DVR to begin recording when the hard drive has filled.

PIN 13. ALARM RESET

When this pin (**PIN 13**) is connected to **GND (PIN 9)**, any alarm notification (Buzzer, LED) on the DVR will be reset.

PIN 14. ALARM INPUT

When this pin (**PIN 14**) is connected to **GND (PIN 9)**, the DVR will start recording and the buzzer will be on.

PIN 15. COM

Under normal operation COM connects with NC (Pin 7). When the alarm is triggered, COM disconnects with NC, and connects with NO. (Form C relay)

Appendix # 4 - Recording Times (in hours)

Expected Times based on a 120 GB HDD

| Record Quality | IPS | 60 | 30 | 15 | 8 | 4 | 2 | 1 |
|----------------|--------|------|------|-------|-------|-------|-------|-------|
| | Best | 13.5 | 27 | 55.5 | 93.5 | 207 | 415.5 | 832.5 |
| | High | 18 | 36 | 73.5 | 138 | 277.5 | 555 | 1110 |
| | Normal | 27 | 55.5 | 111 | 207 | 415.5 | 831 | 1662 |
| | Basic | 45 | 91.5 | 184.5 | 346.5 | 694.5 | 1389 | 2775 |

Expected Times based on a 80 GB HDD

| Record Quality | IPS | 60 | 30 | 15 | 8 | 4 | 2 | 1 |
|----------------|--------|----|----|-----|-----|-----|-----|------|
| | Best | 9 | 18 | 37 | 69 | 138 | 277 | 555 |
| | High | 12 | 24 | 49 | 92 | 185 | 370 | 740 |
| | Normal | 18 | 37 | 74 | 138 | 277 | 554 | 1108 |
| | Basic | 30 | 61 | 123 | 231 | 463 | 926 | 1850 |

Expected Times based on a 40 GB HDD

| Record Quality | IPS | 60 | 30 | 15 | 8 | 4 | 2 | 1 |
|----------------|--------|-----|------|------|-------|-------|-------|-------|
| | Best | 4.5 | 9 | 18.5 | 34.5 | 69 | 138.5 | 277.5 |
| | High | 6 | 12 | 24.5 | 46 | 92.5 | 185 | 370 |
| | Normal | 9 | 18.5 | 37 | 69 | 138.5 | 277 | 554 |
| | Basic | 15 | 30.5 | 61.5 | 115.5 | 231.5 | 463 | 925 |

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rev04
