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## Introduction

The MLRV-A is a single-line video receiver module designed to add Downlook video capabilities to the Sur-Gard MLR2-DG Digital Receiver. The MLRV-A Module may be connected to any DRL2A Line Card installed in the MLR2-DG Receiver. In its maximum configuration, the MLR2-DG Receiver can monitor up to 14 digital lines or a combination of MLRV-A Modules and digital lines.

The MLRV-A, via the DML5A backplane, provides for two video outputs: a simple coaxial output to a video monitor and a video data bus output for PC connection. The DLGB Downlook grabber board and the PSA software must be used for PC connection.

### Designing Your Receiver

The following components are used to add Downlook Video capabilities to the MLR2-DG Receiver:

<b>MLRV-A</b>	Single-line Video Receiver Module
<b>MLR2XV</b>	Expansion Card Cage; accommodates one DRL2A Line Card and two MLRV-A Video Modules
<b>MLRXV</b>	Expansion Card Cage; accommodates four MLRV-A Video Modules
<b>MLRX</b>	Expansion Card Cage; accommodates two DRL2A Line Cards

### Follow these guidelines when adding MLRV-A Modules to the MLR2-DG Receiver:

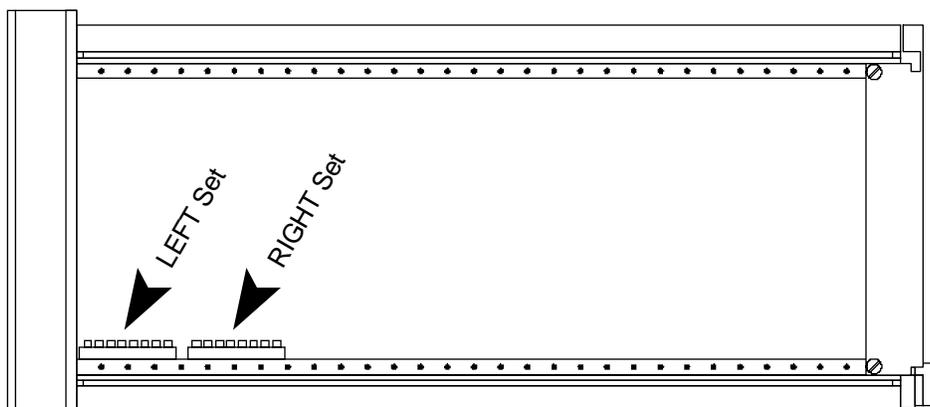
- If several receiver lines are available but only one MLRV-A Module is to be used, it is recommended the MLRV-A be connected to the last line, or on a line by itself.
- Two MLRV-A modules may be used to provide "roll-over" if the first telephone line is busy (for example, if the first MLRV-A is busy, another call would be processed by the second MLRV-A).
- With an MLRV-A module connected, the DRL2A Line Card will still be able to receive non-video accounts. However, it is recommended the number of non-video accounts be limited for DRL2A Line Cards with MLRV-A Modules attached to reduce the possibility of a busy line.

## Program MLRV-A Options

Several video display and operational options on the MLRV-A are programmed with two sets of switches found inside the module. Program these options before installing the MLRV-A Module in the card cage.

### Open the Module

- Be sure to observe proper anti-static precautions when working with the MLRV-A Module.



MLRV-A Receiver as viewed from the side showing location of programming switches.

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### Set the MLRV-A Programming Switches

- Two sets of DIP switches can be accessed through the open side of the MLRV-A Module. Set the switches following the instructions below:

#### LEFT Set

##### Switches 1 through 3: On-Screen Display Times

1	2	3	Option
OFF	OFF	OFF	Half-second display
ON	OFF	OFF	1 second display
OFF	ON	OFF	2 second display
ON	ON	OFF	4 second display
OFF	OFF	ON	8 second display
ON	OFF	ON	16 second display
OFF	ON	ON	32 second display
ON	ON	ON	Text always on screen

##### Switch 4: On-Screen Time and Date

4	Option
OFF	No time and date display
ON	On-screen time and date display

##### Switch 5: Display Text with Outline Option

5	Option
OFF	Display text with black outline
ON	Display text without outline

##### Switch 6: Account Number Flash Option

6	Option
OFF	Account Number does not flash
ON	Flash Account Number

##### Switch 7: Sounder Option

7	Option
OFF	Sounder enabled
ON	Sounder disabled

##### Switch 8: Account Number Display Size

8	Option
OFF	Small Account Number
ON	Large Account Number

#### RIGHT Set

##### Switches 1 and 2: Factory Test Switches

These switches are for factory testing only.

##### Switch 3: Communications Text Option

3	Option
OFF	DRL2A information not displayed
ON	Display communications text information from DRL2A

##### Switch 4: Factory Test

This switch is used for factory testing only.

##### Switch 5: Not Used

##### Switch 6: PAL / NTSC Select

6	Option
OFF	PAL Video Selected
ON	NTSC Video Selected

##### Switch 7: Relay 1 Option

7	Option
OFF	Relay 1 will not activate
ON	Relay 1 activates on alarm for audio recording

##### Switch 8: 8-second Image Display Option

8	Option
OFF	Screen clears after last image is received
ON	Last image remains on screen for 8 seconds

### Install Mounting Screws

- Insert the four black plastic collars in the four mounting holes in the MLRV-A faceplate.
- Insert the four faceplate screws into the collars.

### Install the MLRV-A in the Receiver Rack

- Slide the MLRV-A Module into the Receiver Rack, ensuring the connector on the back of the unit engages the connector on the DML5A Circuit Board secured at the back of the rack
- With the MLRV-A in place, secure the unit with the four faceplate screws

## Maximum Receiver Configurations

Each MLRV-A Module draws 220 mA dc, while each Line Card Module draws 150 mA. The total combined current draw for all modules must not exceed 1.2 A dc for use with a 75 VA transformer and battery backup or 5 A dc for use with a 175 VA transformer and an UPS. To determine the transformer minimum VA rating, the user should calculate the total current for their system.

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## Wire The Receiver

### Telephone Connections

Make the following connections between the DML5A Circuit Boards and the DML2A:

<i>First DML5A</i>	<i>DRL2A</i>	<i>Second DML5A</i>	<i>DRL2A</i>
RX1	TxPG1	RX1	TxPG2
TX1	RxRNGG1	TX1	RxRNGG2
RNG	HNDSET1	RNG	HNDSET2
TIP	HNDSET1	TIP	HNDSET2

### Ribbon Wire Connections

Connect the DML5-A circuit boards to the DML2A as shown in the wiring diagram.

### Video Output Connection

Terminal VCN1 on the DML5-A provide video output for use with a monitor or recording device:

- VCN1 provides video output with on-screen display of alarm information

Connect a video monitor or recording device with 75ohm impedance to VCN1.

## Program the MLR2-DG Receiver

Program the following options in the MLR2-DG Receiver:

<i>Option</i>	<i>Item</i>	<i>Program As</i>
Option [4E]	VIDEO DWNLK	A 1
Option [5E]	INTER BURST	A 1

## Relay Outputs

### Relay 1: NC1, NO1 and C1 Terminals

Relay 1 will activate for several seconds after data is received from the DRL2A Module. This relay may be used to activate time lapse video recording equipment.

### Relay 2: NC2, NO2 and C2 Terminals

Relay 2 will be activated for as long as video images are received by the MLRV-A Module. This relay may be used to activate video recording equipment.

### Relay 3: NC3, NO3 and C3 Terminals

Relay 3 will activate momentarily after each video image is received. This relay may be used with a video recording or printing device.

## Error Information

The MLRV-A can advise of problems encountered during the receipt of video information and in the serial communications between the MLRV-A and the DRL2A. The MLRV-A can indicate errors using the sounder and on-screen display messages. If the sounder or on-screen display functions are disabled, the error messages will not be indicated.

### Error Indications: Sounder

3 long tones	Video data timeout; data transmission is too long
3 short tones	Syncpulse too early; data transmission is too short
1 long, 2 short tones	Syncpulse too long
2 long, 2 short tones	Serial Error: Stop byte error
2 long, 3 short tones	Serial Error: String length error
2 long, 4 short tones	Serial Error: Parity error

### Error Indications: On-Screen Display

"Error #1"	Bad syncpulse from alarm transmitter
"Error #2"	Data transmission too long without sync
"Error #3"	Data transmission too short with sync
"Error #4"	Bad data
"Error #5"	No video present at DLM-4

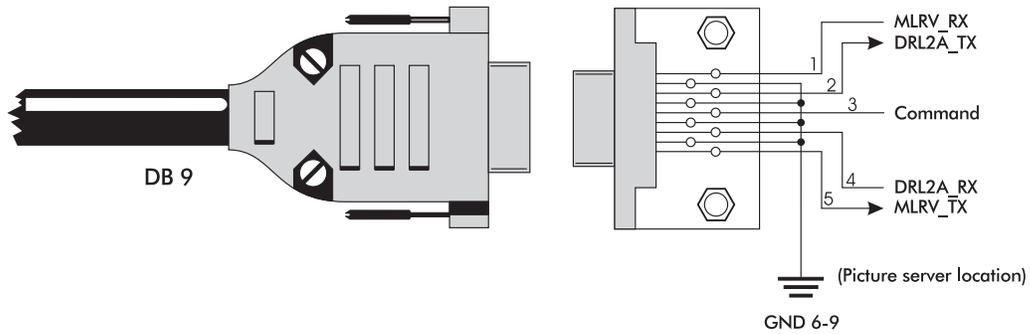
## Video Connection

The DML5-A Video port must be connected to a Listed Video Equipment monitor. The monitor shall be located in the same room as the receiver.



# MLRV-A Backplane / RS232 Cable Connection Diagrams

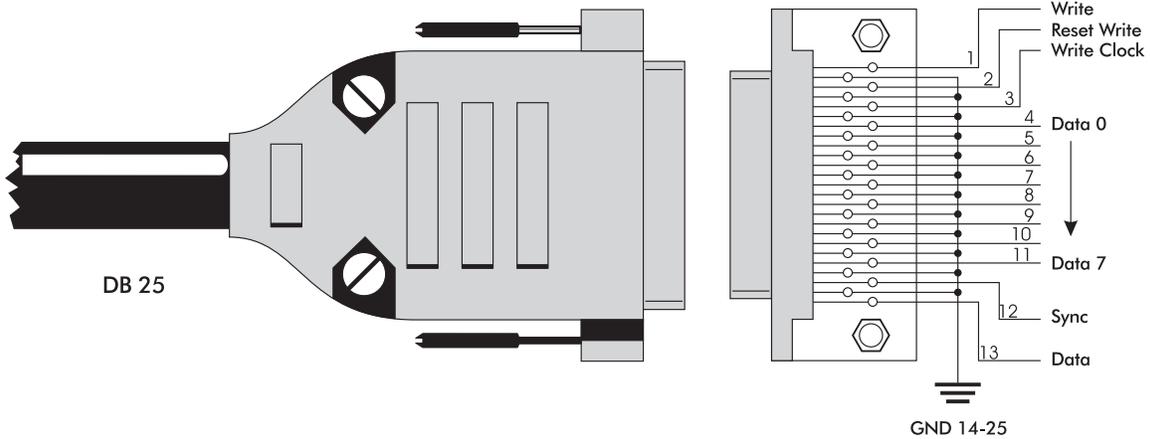
## Video Activation Protocol Lines



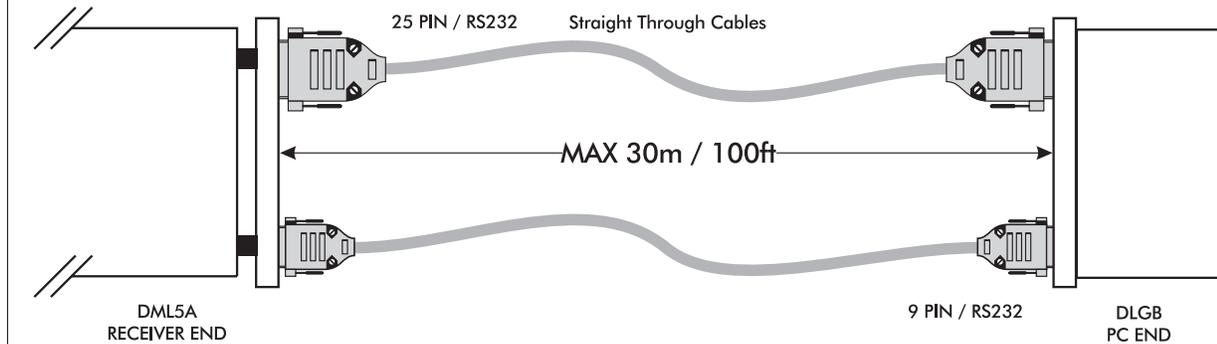
### Signal Routing:

**Send:** DRL2A\_RX to DML5 backplane board to Picture server back to DML5A going into MLRV-A\_RX  
**Return:** MLRV-A\_TX to DML5 backplane board to Picture server back to DML5A going into DRL2A\_RX

## Downlook Picture Bus Lines



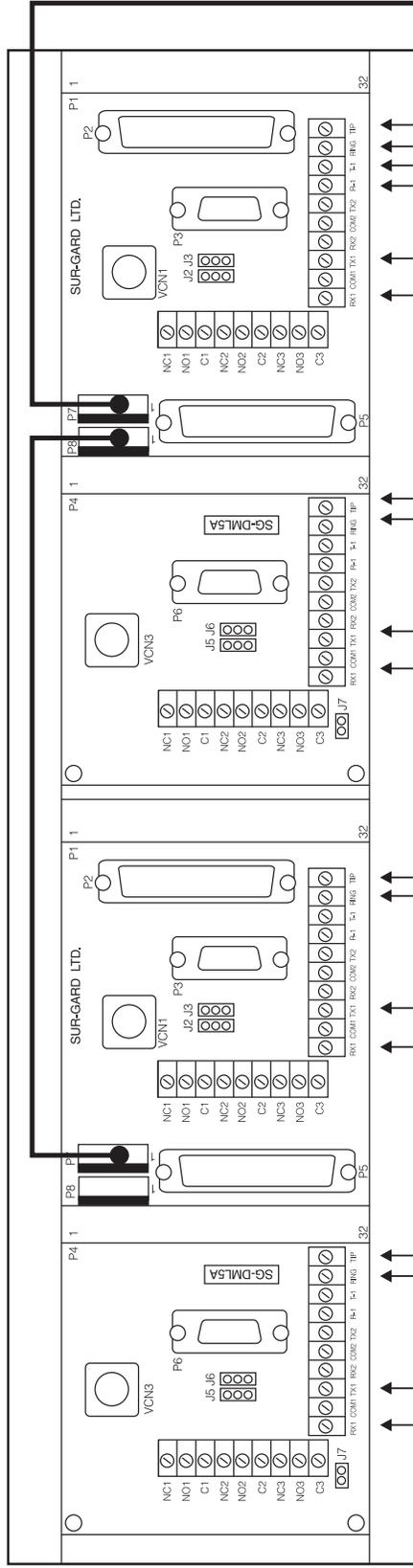
## RS232 Connector Cables



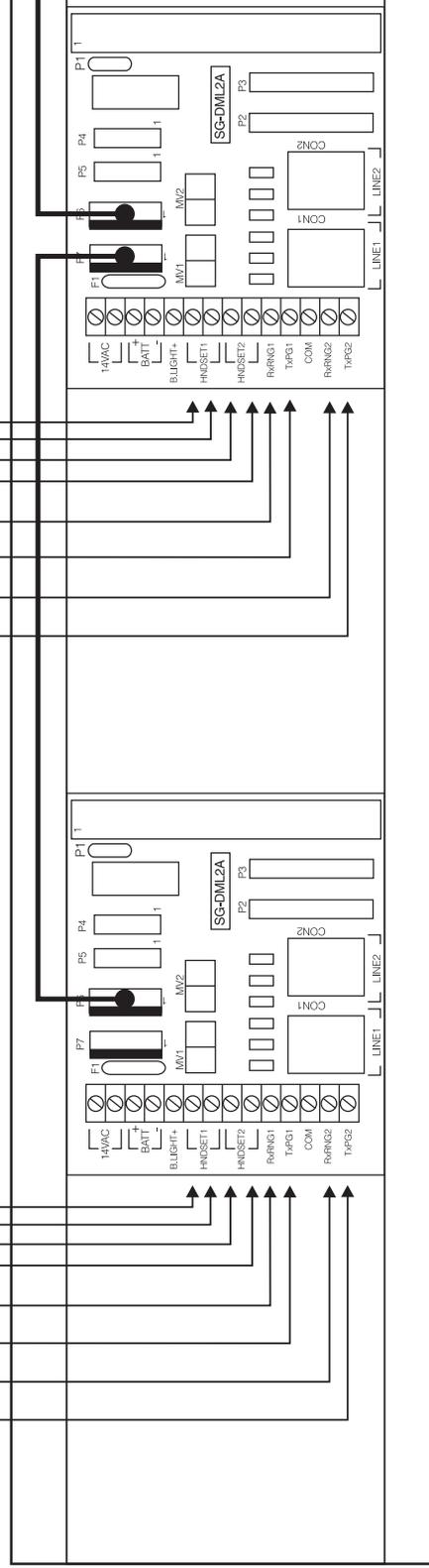


# SG-MLRXV Rear View Connection Diagram

## SG-MLRXV



## SG-MLRX



### J2/J5 and J3/J6 Jumper Settings



## **Limited Warranty**

Sur-Gard Ltd. warrants that for a period of twelve months from the date of purchase, the product shall be free from defects in materials and workmanship under normal use and that in fulfillment of any breach of such warranty, Sur-Gard Ltd. will, at its option, repair or replace the defective equipment upon return of the equipment to its repair depot. This warranty applies only to defects in parts and workmanship and not to damage incurred in shipping or handling, or damage due to causes beyond the control of Sur-Gard Ltd., such as lightning, excessive voltage, mechanical shock, water damage, or damage arising out of abuse, alteration or improper application of the equipment.

The foregoing warranty shall apply only to the original buyer, and is and shall be in lieu of any and all other warranties, whether expressed or implied and of all other obligations or liabilities on the part of Sur-Gard Ltd. Sur-Gard Ltd. neither assumes nor authorizes any other person purporting to act on its behalf to modify or to change this warranty, nor to assume for it any other warranty or liability concerning this product.

### **WARNING**

Sur-Gard Security Systems Ltd. recommends that the entire system be completely tested on regular basis. However, despite frequent testing, and due to, but not limited to, criminal tampering or electrical disruption, it is possible for this product to fail to perform as expected.

## **FCC Compliance Statement**

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference 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 communication. 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 his own expense.

**CAUTION:** Changes or modification not expressly approved by Sur-Gard Security Systems Ltd. could void the user's authority to operate the equipment.

### **Important Information**

This equipment complies with Part 68 of the FCC Rules. On the back of this equipment is a label that contains among other information, the FCC registration number of this equipment.

### **Notification to Telephone Company**

Upon request, the customer shall notify the telephone company of the particular line to which the connection will be made, and provide the FCC registration number and the ringer equivalence of the protective circuit.

**FCC Registration Number:** 1VDCAN-21098-KX-N

**Ringer Equivalence Number:** 0.0B

### **Telephone Connection Requirements**

Except for the telephone company provided ringers, all connections to the telephone network shall be made through standard plugs and telephone company provided jacks, or equivalent, in such a manner as to allow for easy, immediate disconnection of the terminal equipment. Standard jacks shall be so arranged that, if the plug connected thereto is withdrawn, no interference to the operation of the equipment at the customer's premises which remains connected to the telephone network shall occur by reason of such withdrawal.

### **Incidence of Harm**

Should terminal equipment or protective circuitry cause harm to the telephone network, the telephone company shall, where practicable, notify the customer that temporary disconnection of service may be required; however, where prior notice is not practicable, the telephone company may temporarily discontinue service if such action is deemed reasonable in the circumstances. In the case of such temporary discontinuance, the telephone company shall promptly notify the customer and will be given the opportunity to correct the situation.

### **Changes in Telephone Company Equipment or Facilities**

The telephone company may make changes in its communications facilities, equipment, operations or procedures, where such actions are reasonably required and proper in its business. Should any such changes render the customer's terminal equipment incompatible with the telephone company facilities, the customer shall be given adequate notice to effect the modifications to maintain uninterrupted service.

### **General**

This equipment should not be used on coin telephone lines. Connection to party line service is subject to state tariffs.

### **Ringer Equivalence Number (REN)**

The REN is useful to determine the quantity of devices that you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all areas, the sum of the REN's of all devices connected to one line should not exceed five (5). To be certain of the number of devices that you may connect to your line, you may want to contact your local telephone company.

### **Equipment Maintenance Facility**

If you experience trouble with this telephone equipment, please contact the facility indicated below for information on obtaining service or repairs. The telephone company may ask you disconnect this equipment from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning.

### **U.S. Point of Contact**

Digital Security Controls Ltd.  
160 Washburn St.  
Lockport, NY 14094



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401 Magnetic Drive, Units 24-26, Downsview, Ontario, Canada M3J 3H9  
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# **MLRV-A**

## **Video Receiver Module with Automation Output**

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*Installation Instructions*

