V85

Component Video Controller

INSTALLATION MANUAL

ELAN®
HOME SYSTEMS

Preface

Purpose of This Manual

This manual provides step-by-step installation instructions and connection examples, along with basic user information for installation and ongoing use of the V85 Component Video Controller. This manual is written for the installer of this equipment.

Organization

The following information is contained in this manual:

Safety Information	Provides a comprehensive list of safety practices and procedures allowing for the safe installation and operation of ELAN Home Systems' V85 Component Video Controller.
V85 Introduction	Provides an introduction to the V85 Component Video Controller, along with system features to include Front and Rear panel controls, indicators and connections, along with a short description of each.
V85 System Design Overview	Provides a system design application overview of the V85 Component Video Controller for use in video applications.
V85 Connections	Provides a description of V85 Component Video Controller connections including connections made with ELAN Multi-Room Systems and direct connections to the V85 Componenet Video Controller from other components.
Troubleshooting	Provides troubleshooting tables to help fix common discrepancies that may be associated with the V85 Component Video Controller.
CVRM Connections	Appendix A provides specifications for connecting the CVRM Component Video Receive Module to the V85's Cat-5 Video Outputs.
Rack Mounting	Appendix B provides specifications for Rack Mounting of the V85 Component Video Controller using the included rack mount brackets.
Specifications	Appendix C provides equipment specifications for the V85 Component Video Controller.

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WARNING

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.

CAUTION: RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instruction in the literature accompanying the appliance.

WARNING: TO REDUCE THE RISK OF FIRE OR SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION

IMPORTANT SAFETY INFORMATION

Read Information—All the safety and operating information should be read before the appliance is operated.

Follow Information—All operating and use information should be followed.

Retain Information—The safety and operating information should be retained for future reference.

Heed Warnings—All warnings on the appliance and in the operating instructions should be heeded.

Wall Mounting—Mounting of this appliance should be done only by an authorized installer.

Ventilation—The appliances should be situated so that their location or position does not interfere with their proper ventilation. These appliances should never be placed near or over a radiator or heat register. These appliances should not be placed in a built-in installation such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

Non-Use Periods—Appliances that are left unattended and unused for long periods of time should be de-energized.

Power Sources—The appliances should be connected to a power supply only of the type described in the operating instructions or as marked on each appliance. If you are not sure of the type of power supply to your home, consult your authorized ELAN dealer or local power company.

Grounding or Polarization—Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one blade wider than the other blade. A grounding type plug has two blades and a third grounding prong. The polarized wide blade and the third prong are provided for your safety. If the provided plug does not fit your outlet, consult an electrician for replacement of the obsolete outlet.

Water and Moisture—To reduce the risk of electric shock or fire, these appliances should not be used near water—for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool.

Power Cord Protection—Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the apparatus.

Telephones—Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electrical shock from lightning. Do not use a telephone to report a gas leak if the leak is in the vicinity of the ELAN electronic equipment because of risk of fire or explosion.

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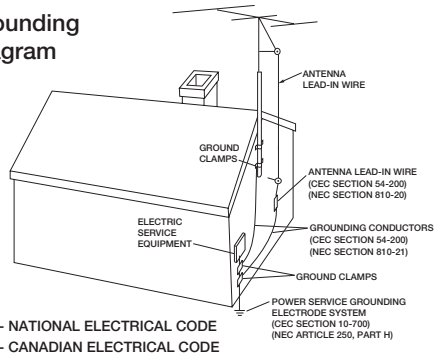
Cleaning—Unplug the apparatus from the power outlet before cleaning. Use only a dry cloth to clean the apparatus.

Power Lines—An outdoor antenna should be located away from power lines. When installing an outside antenna system, extreme care should be taken to avoid touching power lines or circuits, as contact with them may be fatal.

Outdoor Antenna Grounding—If an outside antenna or cable system is connected to these audio products, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the U.S. National Electrical Code, and Section 54 of the Canadian Electrical Code, provide information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See the grounding diagram (right).

Grounding Diagram



NEC - NATIONAL ELECTRICAL CODE
CEC - CANADIAN ELECTRICAL CODE

Overloading—Do not overload wall outlets and extension cords, as this could result in fire or electric shock.

Object and Liquid Entry—Never insert objects of any kind through the openings of these appliances, as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Care should be taken so that objects do not fall and liquids are not spilled into the appliance through openings in the enclosure.

Servicing—Do not attempt to service these appliances yourself, as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

Damage Requiring Service—These appliances should be serviced by qualified service personnel when:

- A power supply connection or a plug has been damaged or
- If liquid has been spilled into the appliance or objects have fallen into the appliance or
- The appliance has been exposed to water or moisture or
- The appliance does not appear to operate normally or exhibits a marked change in performance or
- The appliance has been dropped or the enclosure damaged.

Replacement Parts—When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards. The Master Control Unit battery should be replaced only after turning the power off and only by an authorized installer.

Safety Check—Upon completion of any service or repairs to this audio product, ask the service technician to perform safety checks to determine that the audio product is in proper operating condition.

Lightning Storms—Unplug this apparatus during lightning storms or when unused for long periods of time.

Attachments and Accessories—Use only attachments/accessories specified by the manufacturer.

Cart, Stand, Tripod, Bracket or Table—Use only with a cart, stand, tripod, bracket or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip over.

Disconnect Device—Where the mains plug or an appliance coupler is used as the disconnect device, the disconnect device shall remain operable.

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Table of Contents

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Items in package:

- V85 Component Video Switcher
- Power Cord
- Installation Manual
- Rack Mount Hardware

V85 Accessories:

- CVRM - Component Video Receive Module
- AVRM - Audio Video Receive Module
- PV12 - Video Precision Panel

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Chapter 1: Introduction

The ELAN V85 Component Video Controller is designed to provide a reliable, affordable solution for multi-room systems requiring up to eight component video sources to any of eight locations and can be expanded to 32 locations with additional V85 units.

The ELAN Story

Located in Lexington, KY, USA, ELAN Home Systems has designed innovative multi-room audio/video systems since 1989. ELAN was the first to integrate music, intercom and TV distribution features that used the homeowner's stereos, telephones, and televisions to create the whole-house entertainment experience. These systems allow people to move freely from room to room, controlling centrally located equipment with ease.

With a current catalog of over 600 items and having been honored with many prestigous industry awards, ELAN is considered by many to be the leader in whole-house distributed audio/video systems.

V85 Features

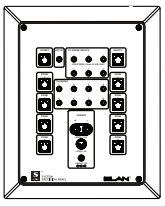
- **8 X 8 Component Video Controller with RCA and Cat-5 (RJ-45) video outputs**
- **Cat-5 video outputs allow for extended wire runs (Up to 500 ft) when using ELAN's Component Video Receive Modules (CVRM), sold separately**
- **Component and Cat-5 video outputs can be used simultaneously for 16 total outputs per chassis***
- **Expandable to 8 X 32 with additional V85 units (Or 8 x 64 when using Cat-5 Outputs*)**
- **RS-232 Controllable**
- **IR Controllable**

Available in 240 Volt Version
cTUVus Certified, CE®, and C-tick

Safety Concerns

Use only grounded outlets when powering this product. Making any modification to the power cord could cause unsafe operation and will void the manufacturer's warranty.

** The video of each Cat-5 output mirrors its corresponding component RCA video output. For example, Cat-5 video output 1 will output the same video signal as component video output 1, and so on.*



ELAN Precision Panels save time and make sense out of complex wiring jobs!

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V85 Functions and Indicators

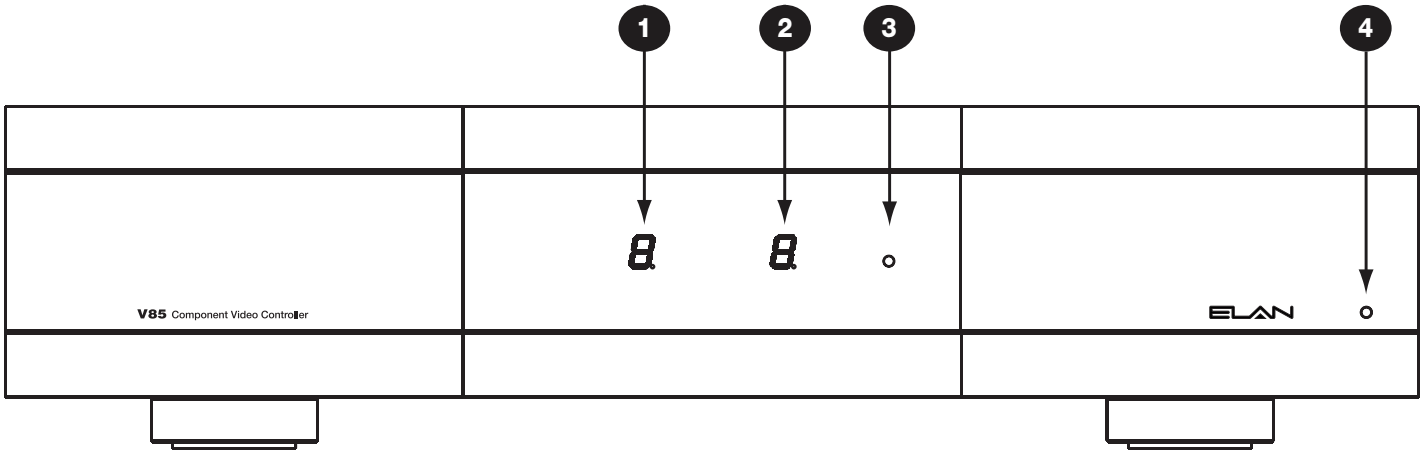

Figure 1-1: V85 Front Panel

Table 1-1:Front Panel

Item	Function
1	OUTPUT CHANNEL INDICATOR
2	INPUT CHANNEL INDICATOR
3	IR ACTIVITY LED
4	POWER LED

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V85 Rear

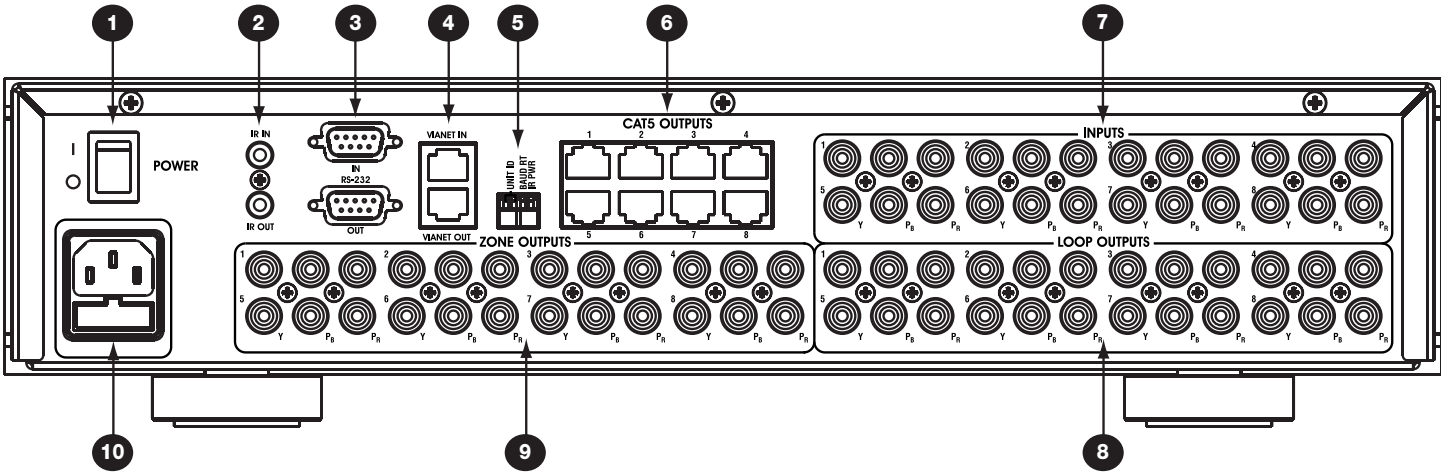

Figure 1-2: V85 Rear Panel

Table 1-2: Rear Panel

Item	Function
1	POWER SWITCH
2	IR IN/OUT
3	RS232 IN/OUT
4	VIA-NET IN/OUT
5	DIP SWITCHES (UNIT ID, BAUD RATE, IR POWER)
6	CAT-5 VIDEO OUTPUTS
7	COMPONENT VIDEO INPUTS
8	COMPONENT VIDEO LOOP OUTPUTS
9	COMPONENT VIDEO ZONE OUTPUTS
10	POWER CORD CONNECTOR/FUSE (REPLACE WITH SPECIFIED TYPE)

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Chapter 2. System Design & Applications

System Design

The first step to a good design is to map the system. It is advisable to mark up a copy of the house floor plan with speaker, keypad, touch panel, volume control, and equipment locations etc. Make sure that all locations are decided upon before pre-wiring so that all necessary wiring and installation hardware is in place. This unit will be interfacing with other components such as multi-room controllers, source components, communications controllers, serial controllers, and user interfaces, so it is essential that ALL system components are accounted for prior to the pre-wire stage.

Secondly, make a detailed list of all components. Include source equipment, keypads, touch panels, volume controls, amplifiers, and communications gear. Be sure to include necessary electrical boxes, structured wiring enclosures, telephone lines, rough-in brackets, patch cords, power supplies, etc.

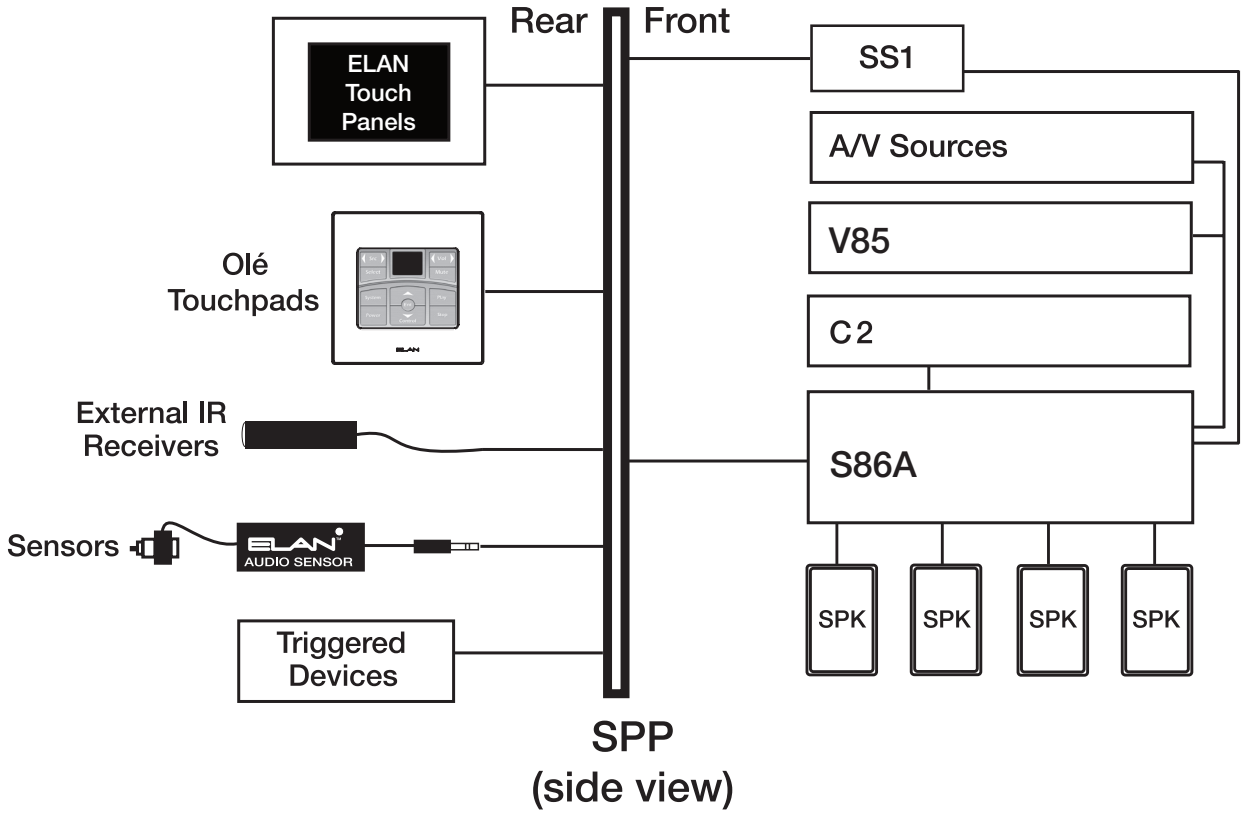
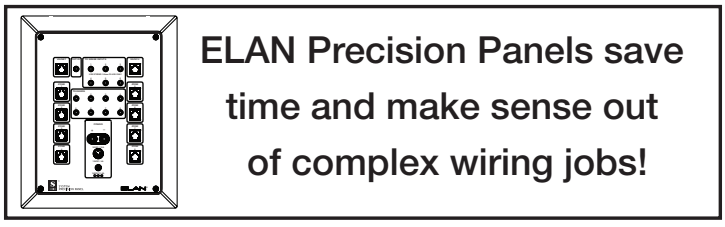


Figure 2-1: System Design



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Pre-Wire

V85 WIRING CONSIDERATIONS

- **Component Video Outputs** — Component/RCA Video Patch Cables
- **Cat-5 Video Outputs** — CAT5 RJ45 to RJ45
- **RS232** — DB9 Cables
- **IR** — 2 Conductor Wire w/ 3.5mm mono connector

This section describes typical applications using the V85 in video distribution installations. These are all basic in nature and should be used for guideline purposes only. Each application can be augmented as needed for individual circumstances. This section is for overall design purposes. Please see Chapter 3: Connections for specific wiring configurations.

Stand-Alone Applications

Basic Stand-Alone System

The diagram below shows a basic stand-alone system that utilizes the V85 to switch component video sources to televisions located throughout the home. A stand-alone system is one in which an ELAN multi-room preamp controller is *not* used.

Note: When using the V85's Cat-5 video outputs, the total number of outputs can be expanded to 16 using one chassis. Be aware, however, that the video of each Cat-5 output mirrors its corresponding component RCA video output. For example Cat-5 video output 1 will output the same video signal as component video output 1, and so on.

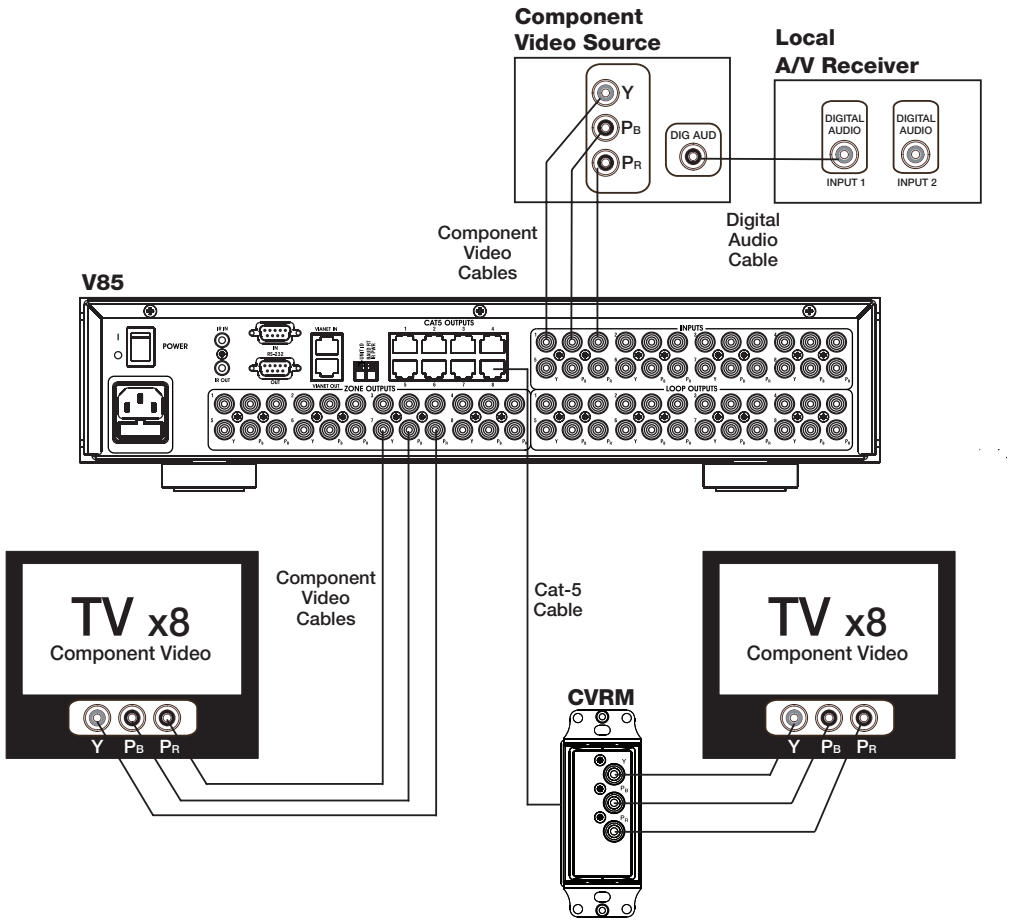

Figure 2-2: Stand-Alone Component Switching

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Multi-Chassis Stand-Alone System

This application shows four V85s linked together to form an 8 x 32 component video matrix. Verify that the UNIT ID DIP switches are correctly set for each unit to ensure proper switching.

Note: When using the V85's Cat-5 video outputs, the total number of outputs can be expanded to 16 using one chassis and 64 outputs using 4 chassis. Be aware, however, that the video of each Cat-5 output mirrors its corresponding component RCA video output. For example Cat-5 video output 1 will output the same video signal as component video output 1, and so on.

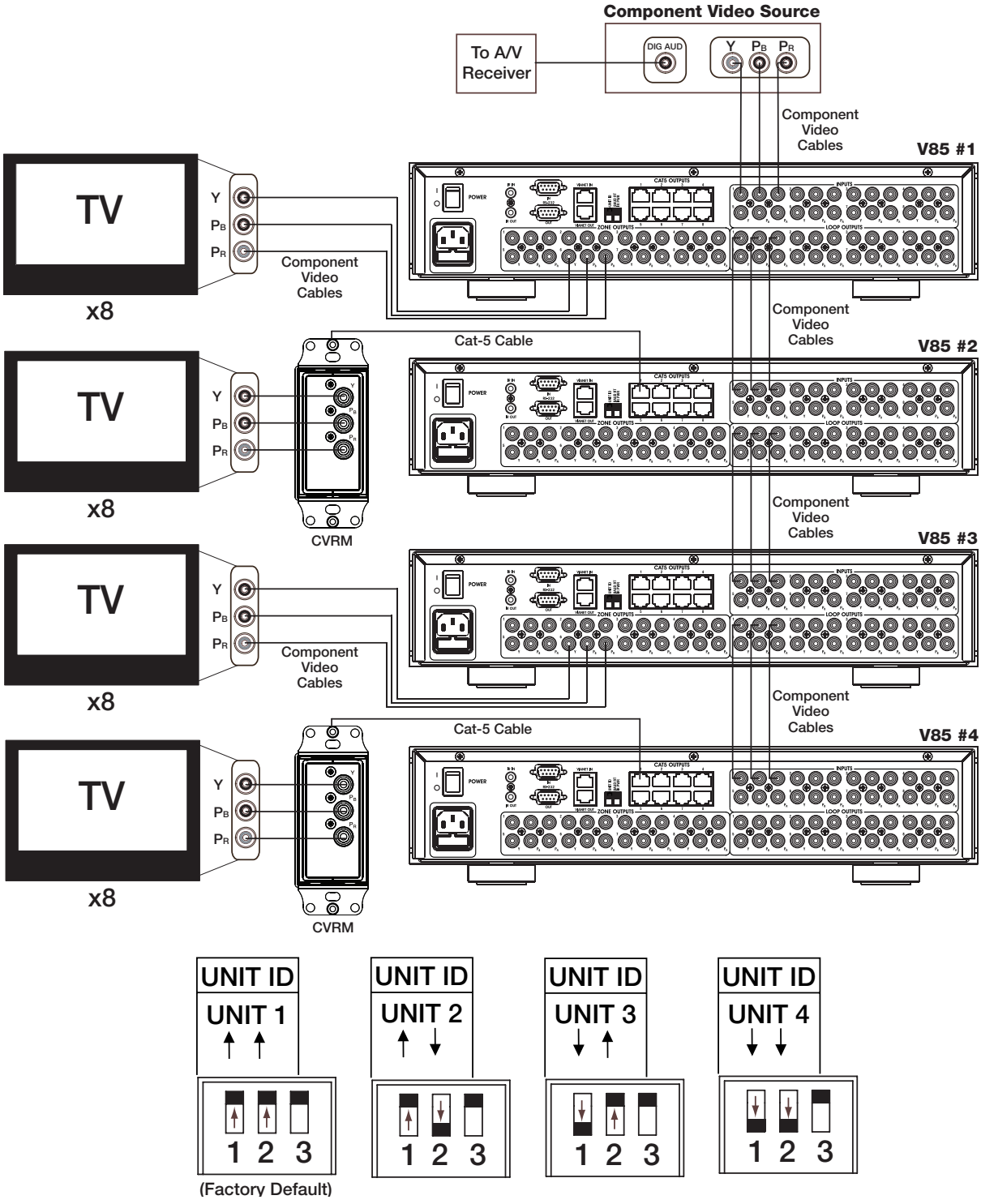

Figure 2-3: Multiple Chassis Configuration

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ELAN Multi-Room Controller-Based Applications

There are many possible applications when using the V85 in ELAN Multi-Room Controller-based systems. This section shows basic concepts that can be combined or arranged according to the needs of the exact system being installed.

V85/S66A

When utilizing a S66A Integrated Multi-Room Controller, the V85 can be an economical and versatile video switching solution. In this application, the S66A routes analog audio and performs IR distribution and amplification functions. The V85 routes component video sources to TVs with component video inputs. The system below shares sources between the S66A and a local Home Theater. A local A/V receiver in the Home Theater is used to play digital audio from the shared BluRay and HD Satellite Receiver.

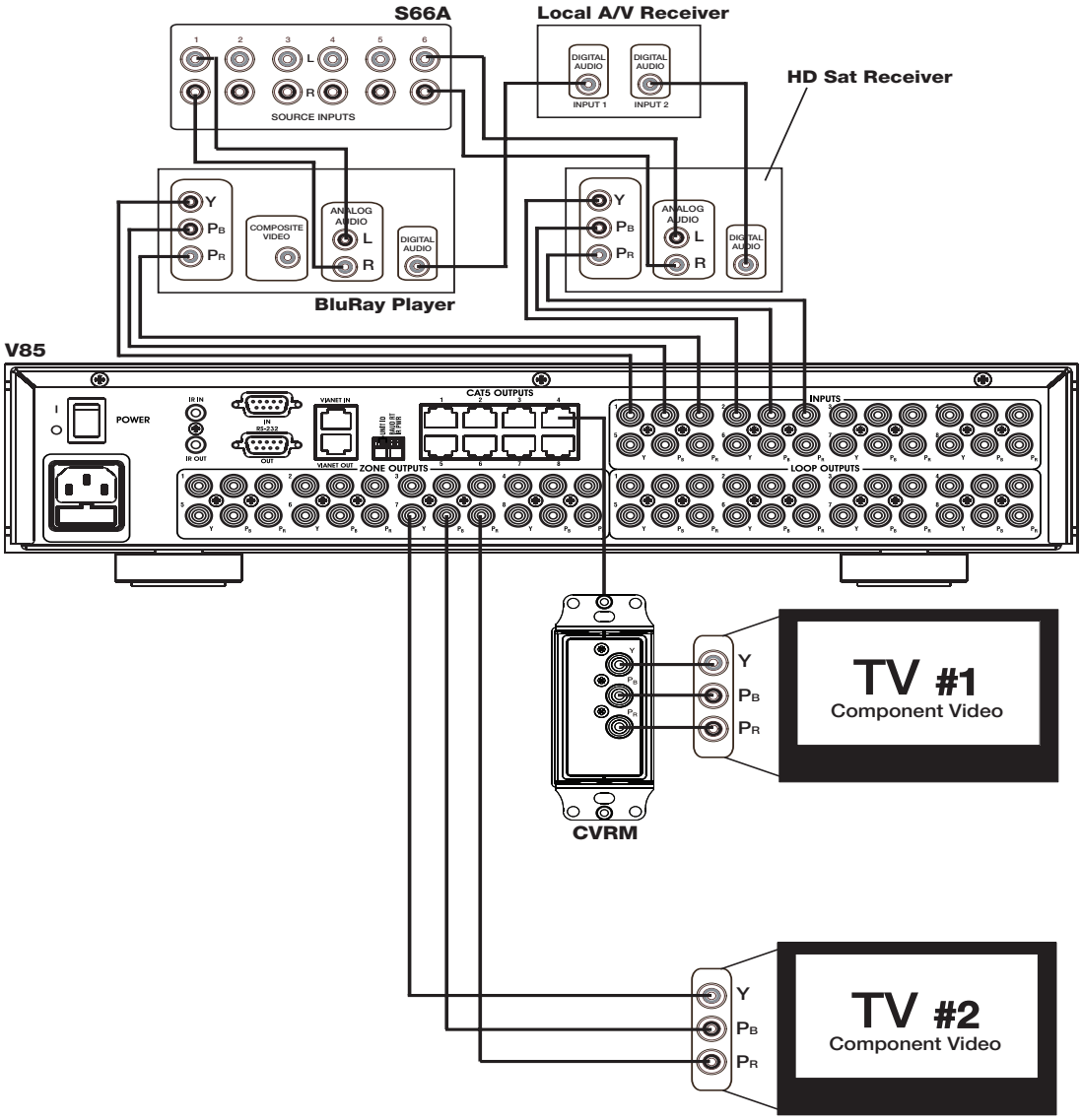

Figure 2-4: V85 and S66A

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V85/S86A or S86P

When utilizing a S86A Integrated Multi-Room Controller, the V85 can be a powerful component video switching add-on. In this application, the S86A routes analog audio and composite video and performs IR distribution and amplification functions. The V85 routes component video sources to TVs with component video inputs and the S86A routes composite video to TVs and ELAN Touch Panels with composite video inputs.

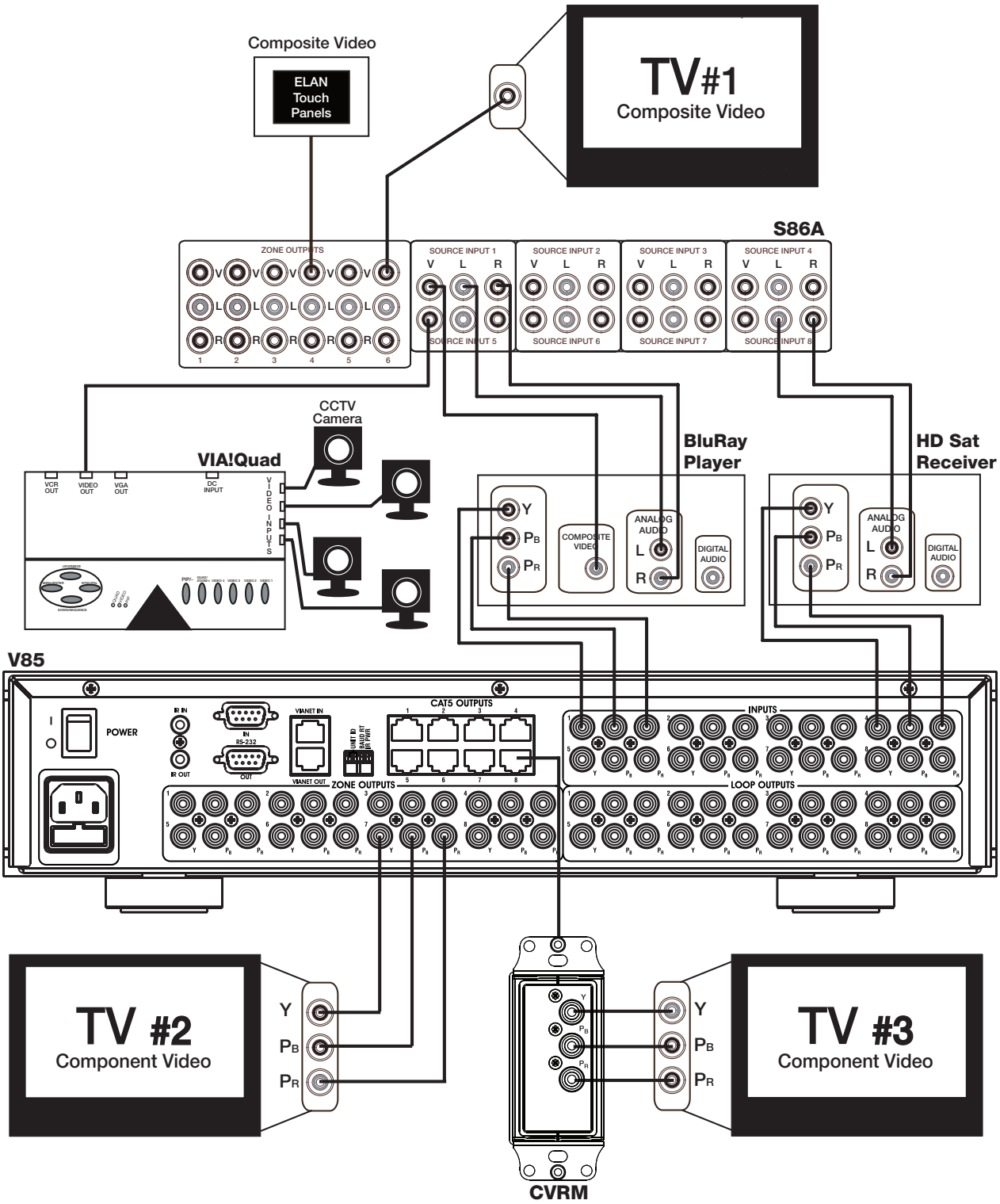

Figure 2-5: V85 and S86A

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V85/S128P

This application shows an S128P Multi-Room A/V Controller performing audio distribution functions as well as composite video switching. The V85 is used to distribute component video. Although the S128P has component video capabilities, the use of the V85 frees up S128P video inputs and allows them to be used as composite video inputs that can be routed to ELAN touch panels and TV's that do not have component video inputs.

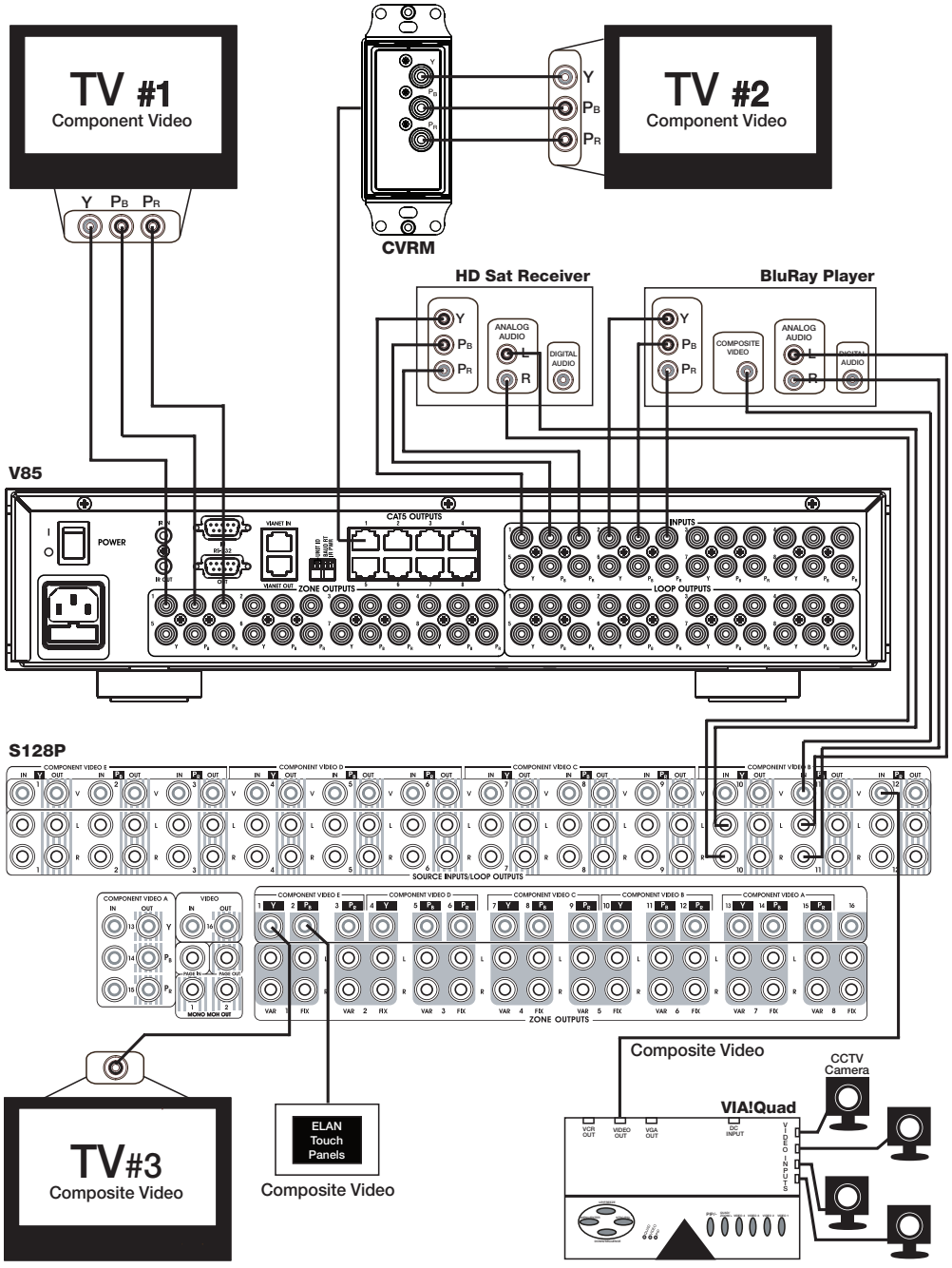

Figure 2-6: V85 and S128P

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Chapter 3: Connections

Component Video Outputs

Use high-quality component video cables to make connections between sources and the V85's inputs. Sources will typically be located near the V85 at the head-end of the system. Component video outputs will typically be sent via RG-6 coaxial cables from the head-end to televisions, monitors and video projectors with component video inputs located throughout the house. Use F-to-RCA adaptors to connect high quality component video cables to each TV, monitor or video projector as shown below. **Maximum coaxial wire run is 300 feet.**

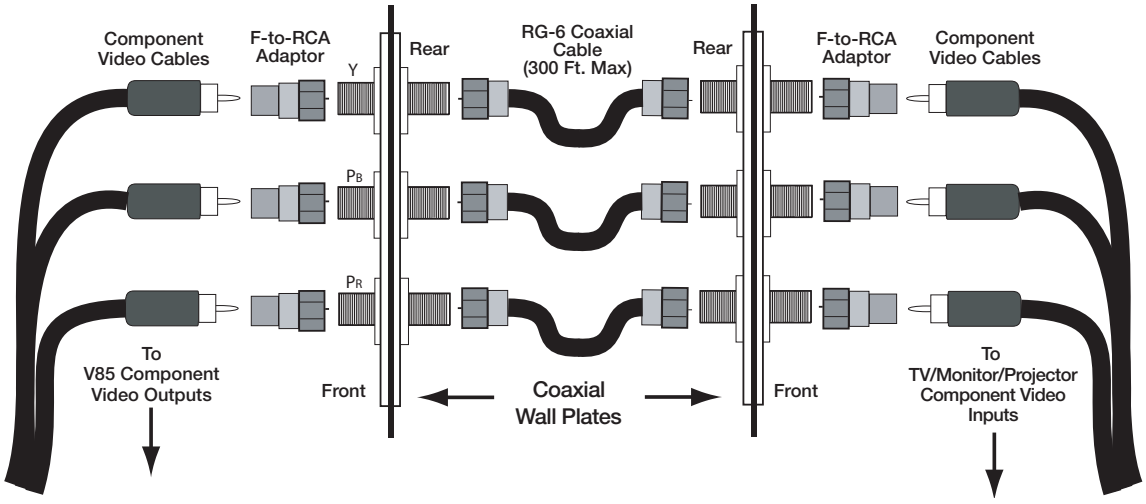

Figure 3-1: Component Video Connectivity

Cat-5 Video Outputs to CVRM Receive Module

ELAN's CVRM Component Video Receive Module makes an ideal companion accessory to the V85 when long video wiring runs are necessary. The CVRM receives component video signals from the V85's Cat-5 outputs, up to 500 feet away with no image quality degradation.

Run Cat-5 cable between the head-end location (where the V85 is located) and the destination location (a TV, monitor or projector). The drawing below shows an example of using CVRM Receive Modules with the Cat-5 outputs of the V85. *See Appendix A: CVRM Component Video Receive Module for detailed specifications and dip-switch settings.*

Control Connections - IR

There are two ways to send IR to the V85 using the 3.5mm IR IN port. The IR OUT port passes any IR signal that is

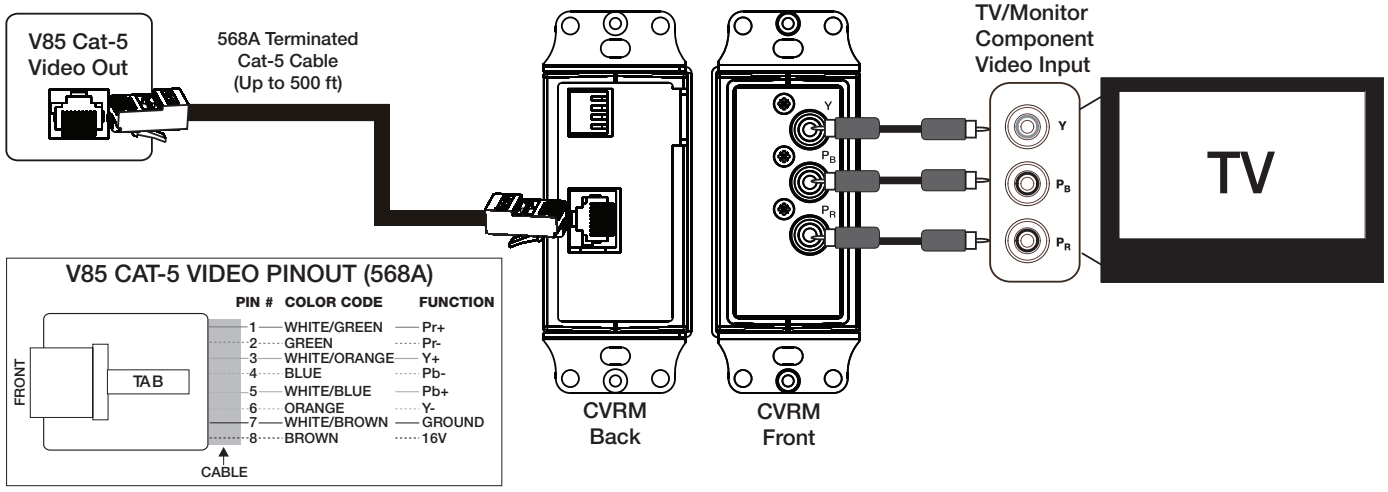

Figure 3-2: CVRM/Cat-5 Connectivity

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sent to the V85's IR IN port.

IR IN Port

Most ELAN multi-room applications will utilize the rear IR IN port for IR control. Use a 3.5mm mono interconnect cable to connect between an IR OUT port (typically an 'ALL' port) of an ELAN multi-room controller and the IR IN port of the V85. In this configuration, any IR signal sent from any zone of the multi-room system will be sent to the V85.

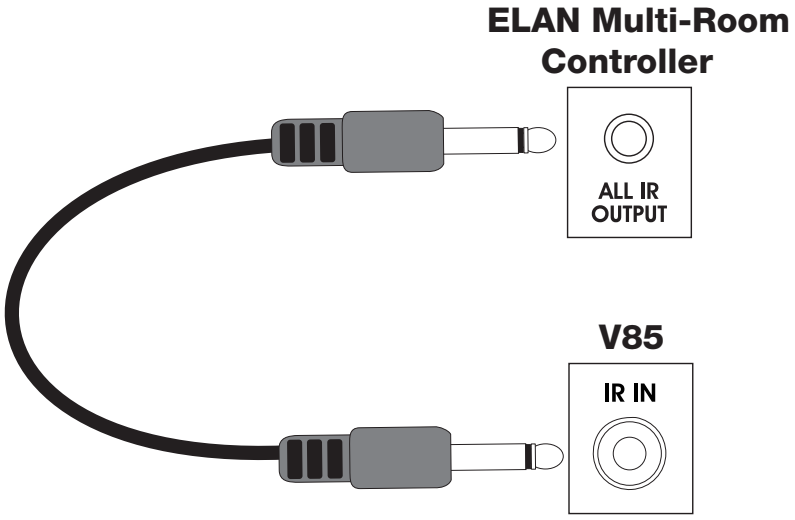

Figure 3-3: IR IN

An IR Receiver such as the ELAN IRS5 may be plugged directly into the V85 to allow for individual room control or system-wide control using V85 discrete IR codes. See *Figure 4-4: IR Power DIP Settings* to enable IR Receiver Power.

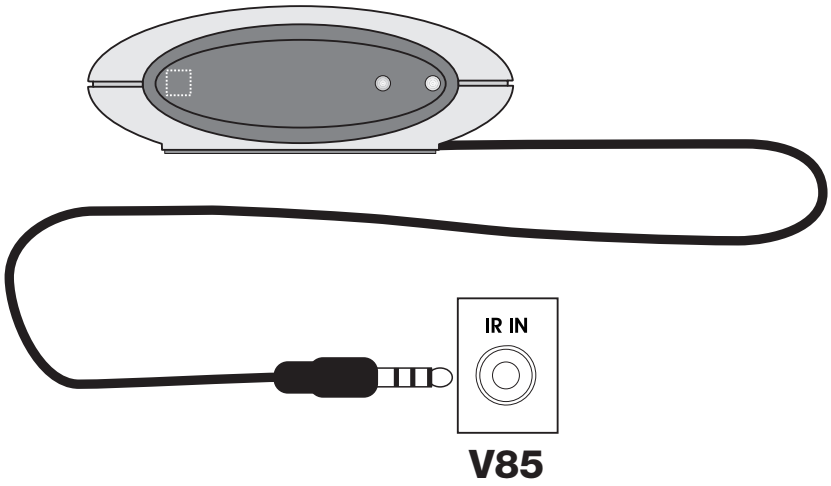

Figure 3-4: IR IN using ELAN IRS5

Connecting the CVRM Receive Module

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IR OUT Port

Any IR signal that is sent into the V85 through the IR IN port is passed out of the IR OUT port. Use the IR OUT port to link multiple V85s or as a convenient way to send signals to additional IR controlled devices, or to IR distribution products such as ELAN's IRD4 Amplified IR Connection Block, as shown below.

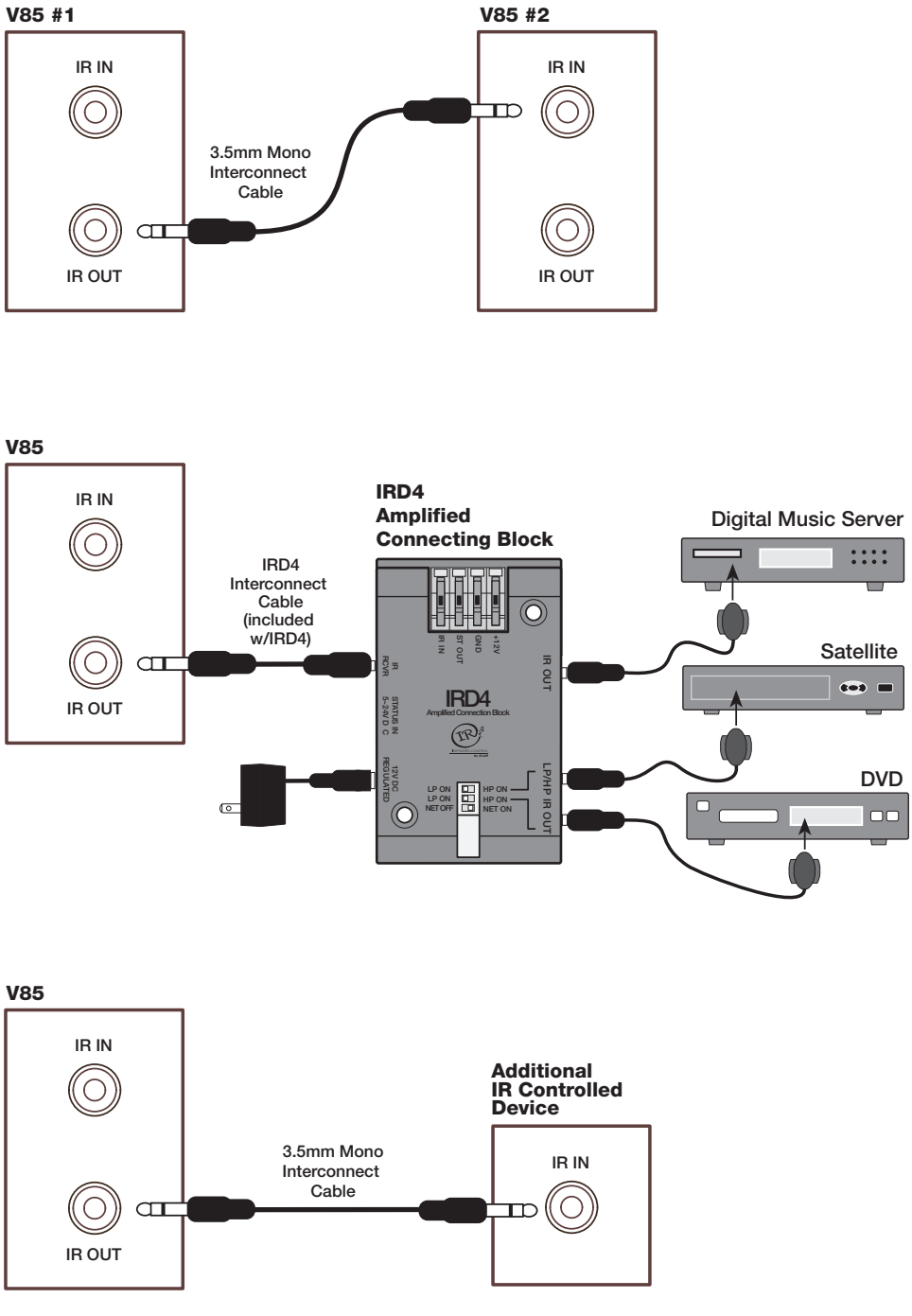

Figure 3-5: IR Out Connections

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Control Connections - RS-232

Use the SERIAL PORTS when a computer, third party, or ELAN RS-232 controller will be used with the V85.

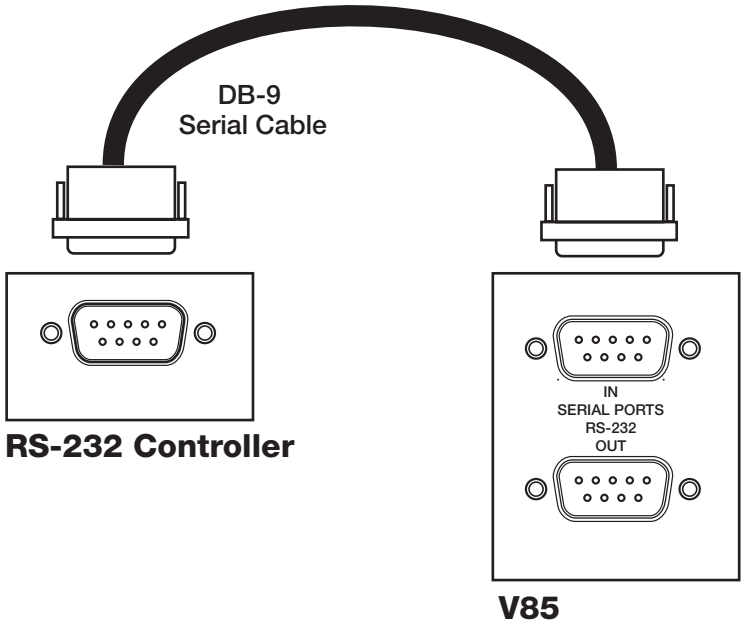

Figure 3-6: Single Chassis RS232 Connection

Multi-Chassis Connections - RS-232

Connect a DB-9 serial cable between two (or more) V85 chassis as shown below when controlling multiple units using RS-232 serial communications.

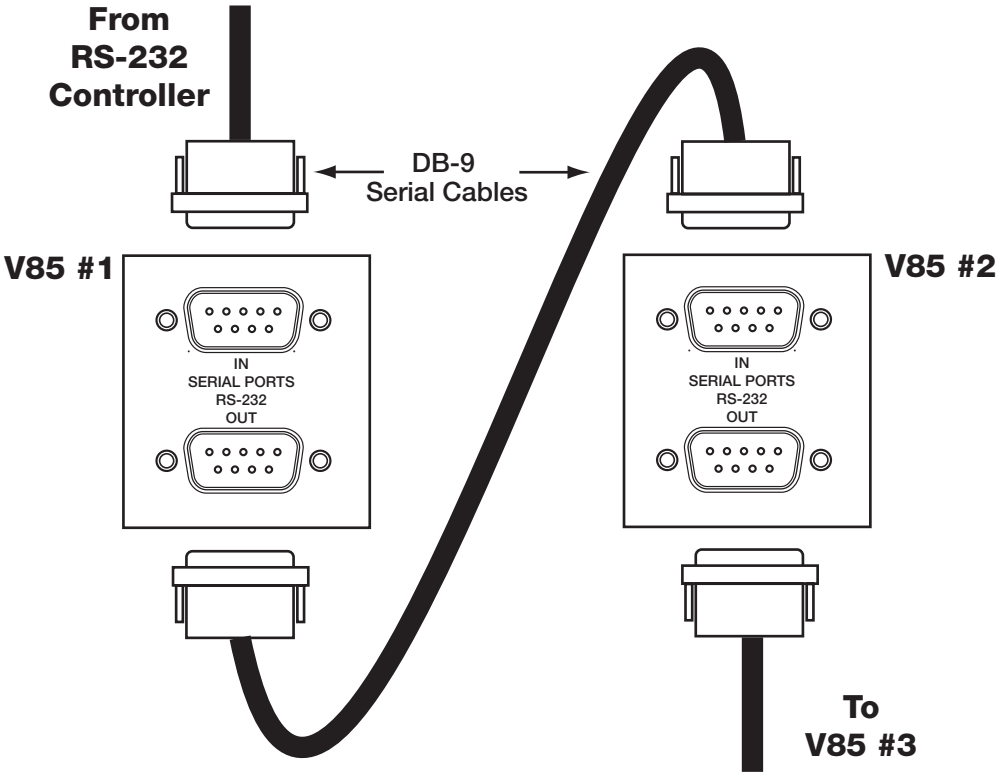

Figure 3-7: Multiple Chassis RS232 Connections

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AC Power Connector

A removable IEC compatible AC Power cord is included for connecting the V85 AC Power Connector to 120VAC or 240VAC power. The fuse is located below the receptacle.

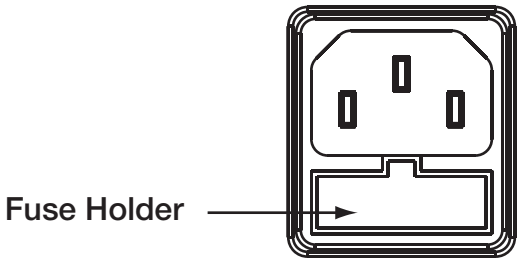

Figure 3-9: AC Power Connector

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Chapter 4: Operations & Settings

DIP Switch Settings - UNIT ID

Consult the chart below to determine the correct UNIT ID DIP Switch settings. These settings determine to which output commands a particular unit will respond. V85s set to UNIT ID 1 will respond to commands specifying Outputs 1-8, UNIT ID 2 responds to commands specifying Outputs 9-16, etc.

Unit ID	Zones	Switch #1	Switch #2
1	1-8	OFF/UP	OFF/UP
2	9-16	OFF/UP	ON/DOWN
3	17-24	ON/DOWN	OFF/UP
4	25-32	ON/DOWN	ON/DOWN

Table 4-1: Unit ID Settings

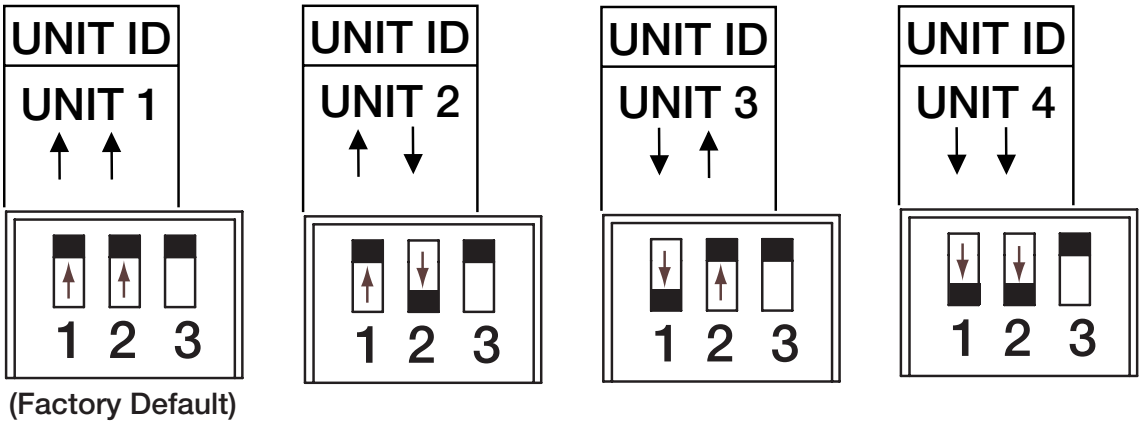

Figure 4-1: Unit ID DIP Settings

Front Panel Unit ID Designations

The Output/Input LED indicators on the front display the V85s UNIT ID designation. A decimal point located in the display window indicates the Unit ID for each chassis as shown below.

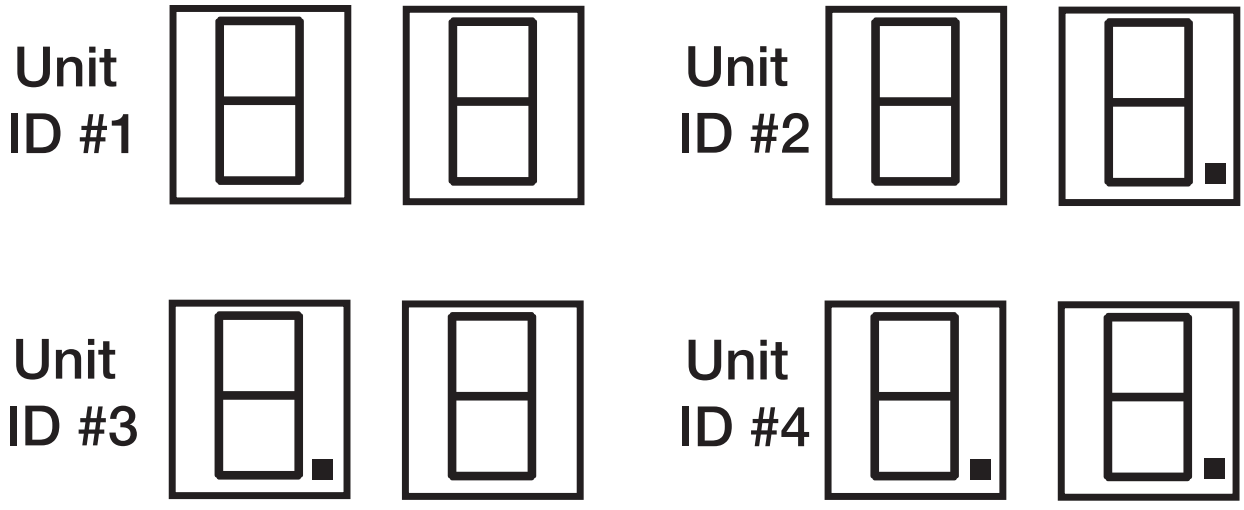

Figure 4-2: Front Panel Unit ID Designations

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DIP Switch Settings - Baud Rate

Set the Baud Rate DIP switch to the 9600 position (Up) when utilizing RS-232 controllers that require this baud rate. Use the 19.2k (Down) position for ELAN RS-232 applications and third party controllers that operate at 19.2k.

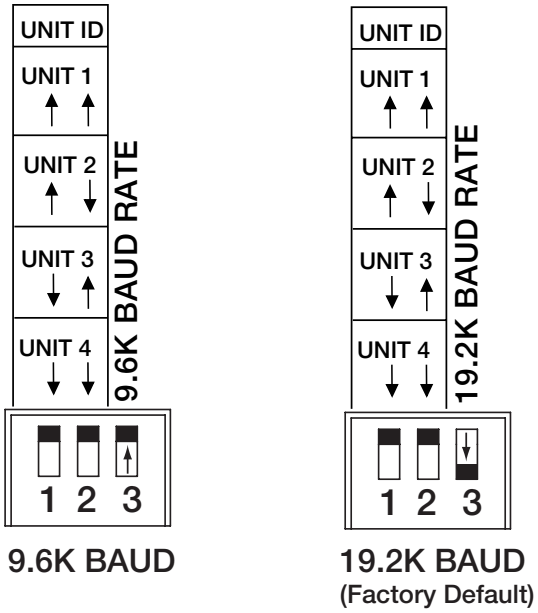

Figure 4-3: Baud Rate DIP Settings

DIP Switch Settings - IR Power

When powering external IR Receivers such as the ELAN IRS5, enable (Down) the IR PWR DIP Switch.

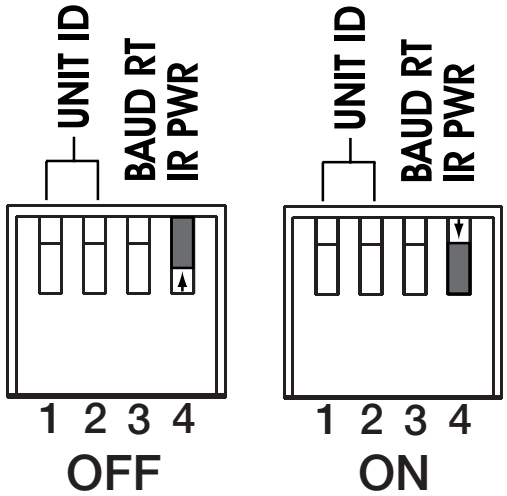

Figure 4-4: IR Power DIP Settings

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5. Programming

Use ELAN's configuration software to assign commands to keypads, Ole' Touchpads and Touch Panels. When programming ELAN user interfaces, the configuration software will automatically assign the video switching commands. Please consult ELAN's configuration software and the Help file for specific programming steps and full IR, and RS-232 code sets.

Control Methods

There are two methods of controlling the V85.

- **IR**
- **RS-232**

Overall system configuration and design goals will determine which programming method should be used.

IR

Use IR commands when controlling the V85 with ELAN keypads, Ole' Touchpads or hand-held remote controls.

RS-232

Use RS-232 commands when controlling the V85 with the ELAN SS1 or other third-party RS-232 controllers or when using a computer to test/verify RS-232 functionality.

V85 RS-232 Protocol

The V85 uses the following communications settings:

- **Baud-9.6k or 19.2k** (Default)
- **8 Data Bits**
- **1 Stop Bit**
- **No Parity**
- **Flow Control-None**

Command Structure

- **Prefix:** Must be present for every command string (Required)
- **Command:** See list below for all commands (Required)
- **Parameter:** Decimal value of zone/source command
- **Carriage Return:** 0x0d or Decimal 13 (Required)

&V85, cmd, par <cr>

Command KEY

- **&V85,KEY,xxx<CR>** where **xxx** represents the decimal value of the IR command.
- Unit responds with acknowledgement **&V85,ACK,xxx<CR>**
- Unit will ignore all characters preceding the '**&**'. It will process and **ACK** the command as soon as the carriage return has been received.
- **EXAMPLES:**

&V85,KEY,041 <CR>	Connects output 6 to input 2
&V85,KEY,120 <CR>	Connects output 16 (chassis #2) to input 1

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Command QRY

• **&V85,QRY,u?<CR>**

QRY: Queries a unit to get the current output to input assignments.

u: Unit to be queried

• **&V85,QRY,u?<CR>** where **u** is the UNIT I.D. (1-4).

The reply to a **QRY** is:

• **&V85,QRY,u,abcdefgh<CR>** **a-h** represents outputs 1-8 respectively. The value will be 0-8 (0 = OFF).

• **EXAMPLE:**

(QUERY)	**&V85,QRY,1? <CR>**	Queries V85 Unit 1 for its current output to input assignments
(REPLY)	**&V85,QRY,1,28311140 <CR>**	This reply is interpreted as follows: Unit 1 Output 1, Input 2 Output 2, Input 8 Output 3, Input 3 Output 4, Input 1 Output 5, Input 1 Output 6, Input 1 Output 7, Input 4 Output 8, Input 0 (OFF)

Note: The V85 requires at least 50ms between each serial command transmitted to it. However, if the &V85,ACK,xxx<CR> is received prior to 50ms, another command can be transmitted immediately.

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RS-232 Command List

DESCRIPTION	DEC	DESCRIPTION	DEC
OUTPUT1 INPUT1	000	OUTPUT9 INPUT1	064
OUTPUT1 INPUT2	001	OUTPUT9 INPUT2	065
OUTPUT1 INPUT3	002	OUTPUT9 INPUT3	066
OUTPUT1 INPUT4	003	OUTPUT9 INPUT4	067
OUTPUT1 INPUT5	004	OUTPUT9 INPUT5	068
OUTPUT1 INPUT6	005	OUTPUT9 INPUT6	069
OUTPUT1 INPUT7	006	OUTPUT9 INPUT7	070
OUTPUT1 INPUT8	007	OUTPUT9 INPUT8	071
OUTPUT2 INPUT1	008	OUTPUT10 INPUT1	072
OUTPUT2 INPUT2	009	OUTPUT10 INPUT2	073
OUTPUT2 INPUT3	010	OUTPUT10 INPUT3	074
OUTPUT2 INPUT4	011	OUTPUT10 INPUT4	075
OUTPUT2 INPUT5	012	OUTPUT10 INPUT5	076
OUTPUT2 INPUT6	013	OUTPUT10 INPUT6	077
OUTPUT2 INPUT7	014	OUTPUT10 INPUT7	078
OUTPUT2 INPUT8	015	OUTPUT10 INPUT8	079
OUTPUT3 INPUT1	016	OUTPUT11 INPUT1	080
OUTPUT3 INPUT2	017	OUTPUT11 INPUT2	081
OUTPUT3 INPUT3	018	OUTPUT11 INPUT3	082
OUTPUT3 INPUT4	019	OUTPUT11 INPUT4	083
OUTPUT3 INPUT5	020	OUTPUT11 INPUT5	084
OUTPUT3 INPUT6	021	OUTPUT11 INPUT6	085
OUTPUT3 INPUT7	022	OUTPUT11 INPUT7	086
OUTPUT3 INPUT8	023	OUTPUT11 INPUT8	087
OUTPUT4 INPUT1	024	OUTPUT12 INPUT1	088
OUTPUT4 INPUT2	025	OUTPUT12 INPUT2	089
OUTPUT4 INPUT3	026	OUTPUT12 INPUT3	090
OUTPUT4 INPUT4	027	OUTPUT12 INPUT4	091
OUTPUT4 INPUT5	028	OUTPUT12 INPUT5	092
OUTPUT4 INPUT6	029	OUTPUT12 INPUT6	093
OUTPUT4 INPUT7	030	OUTPUT12 INPUT7	094
OUTPUT4 INPUT8	031	OUTPUT12 INPUT8	095
OUTPUT5 INPUT1	032	OUTPUT13 INPUT1	096
OUTPUT5 INPUT2	033	OUTPUT13 INPUT2	097
OUTPUT5 INPUT3	034	OUTPUT13 INPUT3	098
OUTPUT5 INPUT4	035	OUTPUT13 INPUT4	099
OUTPUT5 INPUT5	036	OUTPUT13 INPUT5	100
OUTPUT5 INPUT6	037	OUTPUT13 INPUT6	101
OUTPUT5 INPUT7	038	OUTPUT13 INPUT7	102
OUTPUT5 INPUT8	039	OUTPUT13 INPUT8	103
OUTPUT6 INPUT1	040	OUTPUT14 INPUT1	104
OUTPUT6 INPUT2	041	OUTPUT14 INPUT2	105
OUTPUT6 INPUT3	042	OUTPUT14 INPUT3	106
OUTPUT6 INPUT4	043	OUTPUT14 INPUT4	107
OUTPUT6 INPUT5	044	OUTPUT14 INPUT5	108
OUTPUT6 INPUT6	045	OUTPUT14 INPUT6	109
OUTPUT6 INPUT7	046	OUTPUT14 INPUT7	110
OUTPUT6 INPUT8	047	OUTPUT14 INPUT8	111
OUTPUT7 INPUT1	048	OUTPUT15 INPUT1	112
OUTPUT7 INPUT2	049	OUTPUT15 INPUT2	113
OUTPUT7 INPUT3	050	OUTPUT15 INPUT3	114
OUTPUT7 INPUT4	051	OUTPUT15 INPUT4	115
OUTPUT7 INPUT5	052	OUTPUT15 INPUT5	116
OUTPUT7 INPUT6	053	OUTPUT15 INPUT6	117
OUTPUT7 INPUT7	054	OUTPUT15 INPUT7	118
OUTPUT7 INPUT8	055	OUTPUT15 INPUT8	119
OUTPUT8 INPUT1	056	OUTPUT16 INPUT1	120
OUTPUT8 INPUT2	057	OUTPUT16 INPUT2	121
OUTPUT8 INPUT3	058	OUTPUT16 INPUT3	122
OUTPUT8 INPUT4	059	OUTPUT16 INPUT4	123
OUTPUT8 INPUT5	060	OUTPUT16 INPUT5	124
OUTPUT8 INPUT6	061	OUTPUT16 INPUT6	125
OUTPUT8 INPUT7	062	OUTPUT16 INPUT7	126
OUTPUT8 INPUT8	063	OUTPUT16 INPUT8	127

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DESCRIPTION	DEC	DESCRIPTION	DEC	DESCRIPTION	DEC
OUTPUT17 INPUT1	128	OUTPUT25 INPUT1	192	OUTPUT1 OFF	256
OUTPUT17 INPUT2	129	OUTPUT25 INPUT2	193	OUTPUT2 OFF	257
OUTPUT17 INPUT3	130	OUTPUT25 INPUT3	194	OUTPUT3 OFF	258
OUTPUT17 INPUT4	131	OUTPUT25 INPUT4	195	OUTPUT4 OFF	259
OUTPUT17 INPUT5	132	OUTPUT25 INPUT5	196	OUTPUT5 OFF	260
OUTPUT17 INPUT6	133	OUTPUT25 INPUT6	197	OUTPUT6 OFF	261
OUTPUT17 INPUT7	134	OUTPUT25 INPUT7	198	OUTPUT7 OFF	262
OUTPUT17 INPUT8	135	OUTPUT25 INPUT8	199	OUTPUT8 OFF	263
OUTPUT18 INPUT1	136	OUTPUT26 INPUT1	200	OUTPUT9 OFF	264
OUTPUT18 INPUT2	137	OUTPUT26 INPUT2	201	OUTPUT10 OFF	265
OUTPUT18 INPUT3	138	OUTPUT26 INPUT3	202	OUTPUT11 OFF	266
OUTPUT18 INPUT4	139	OUTPUT26 INPUT4	203	OUTPUT12 OFF	267
OUTPUT18 INPUT5	140	OUTPUT26 INPUT5	204	OUTPUT13 OFF	268
OUTPUT18 INPUT6	141	OUTPUT26 INPUT6	205	OUTPUT14 OFF	269
OUTPUT18 INPUT7	142	OUTPUT26 INPUT7	206	OUTPUT15 OFF	270
OUTPUT18 INPUT8	143	OUTPUT26 INPUT8	207	OUTPUT16 OFF	271
OUTPUT19 INPUT1	144	OUTPUT27 INPUT1	208	OUTPUT17 OFF	272
OUTPUT19 INPUT2	145	OUTPUT27 INPUT2	209	OUTPUT18 OFF	273
OUTPUT19 INPUT3	146	OUTPUT27 INPUT3	210	OUTPUT19 OFF	274
OUTPUT19 INPUT4	147	OUTPUT27 INPUT4	211	OUTPUT20 OFF	275
OUTPUT19 INPUT5	148	OUTPUT27 INPUT5	212	OUTPUT21 OFF	276
OUTPUT19 INPUT6	149	OUTPUT27 INPUT6	213	OUTPUT22 OFF	277
OUTPUT19 INPUT7	150	OUTPUT27 INPUT7	214	OUTPUT23 OFF	278
OUTPUT19 INPUT8	151	OUTPUT27 INPUT8	215	OUTPUT24 OFF	279
OUTPUT20 INPUT1	152	OUTPUT28 INPUT1	216	OUTPUT25 OFF	280
OUTPUT20 INPUT2	153	OUTPUT28 INPUT2	217	OUTPUT26 OFF	281
OUTPUT20 INPUT3	154	OUTPUT28 INPUT3	218	OUTPUT27 OFF	282
OUTPUT20 INPUT4	155	OUTPUT28 INPUT4	219	OUTPUT28 OFF	283
OUTPUT20 INPUT5	156	OUTPUT28 INPUT5	220	OUTPUT29 OFF	284
OUTPUT20 INPUT6	157	OUTPUT28 INPUT6	221	OUTPUT30 OFF	285
OUTPUT20 INPUT7	158	OUTPUT28 INPUT7	222	OUTPUT31 OFF	286
OUTPUT20 INPUT8	159	OUTPUT28 INPUT8	223	OUTPUT32 OFF	287
OUTPUT21 INPUT1	160	OUTPUT29 INPUT1	224	ALL OUTPUTS OFF	288
OUTPUT21 INPUT2	161	OUTPUT29 INPUT2	225	ALL UNIT 1 OFF	289
OUTPUT21 INPUT3	162	OUTPUT29 INPUT3	226	ALL UNIT 2 OFF	290
OUTPUT21 INPUT4	163	OUTPUT29 INPUT4	227	ALL UNIT 3 OFF	291
OUTPUT21 INPUT5	164	OUTPUT29 INPUT5	228	ALL UNIT 4 OFF	292
OUTPUT21 INPUT6	165	OUTPUT29 INPUT6	229		
OUTPUT21 INPUT7	166	OUTPUT29 INPUT7	230		
OUTPUT21 INPUT8	167	OUTPUT29 INPUT8	231		
OUTPUT22 INPUT1	168	OUTPUT30 INPUT1	232		
OUTPUT22 INPUT2	169	OUTPUT30 INPUT2	233		
OUTPUT22 INPUT3	170	OUTPUT30 INPUT3	234		
OUTPUT22 INPUT4	171	OUTPUT30 INPUT4	235		
OUTPUT22 INPUT5	172	OUTPUT30 INPUT5	236		
OUTPUT22 INPUT6	173	OUTPUT30 INPUT6	237		
OUTPUT22 INPUT7	174	OUTPUT30 INPUT7	238		
OUTPUT22 INPUT8	175	OUTPUT30 INPUT8	239		
OUTPUT23 INPUT1	176	OUTPUT31 INPUT1	240		
OUTPUT23 INPUT2	177	OUTPUT31 INPUT2	241		
OUTPUT23 INPUT3	178	OUTPUT31 INPUT3	242		
OUTPUT23 INPUT4	179	OUTPUT31 INPUT4	243		
OUTPUT23 INPUT5	180	OUTPUT31 INPUT5	244		
OUTPUT23 INPUT6	181	OUTPUT31 INPUT6	245		
OUTPUT23 INPUT7	182	OUTPUT31 INPUT7	246		
OUTPUT23 INPUT8	183	OUTPUT31 INPUT8	247		
OUTPUT24 INPUT1	184	OUTPUT32 INPUT1	248		
OUTPUT24 INPUT2	185	OUTPUT32 INPUT2	249		
OUTPUT24 INPUT3	186	OUTPUT32 INPUT3	250		
OUTPUT24 INPUT4	187	OUTPUT32 INPUT4	251		
OUTPUT24 INPUT5	188	OUTPUT32 INPUT5	252		
OUTPUT24 INPUT6	189	OUTPUT32 INPUT6	253		
OUTPUT24 INPUT7	190	OUTPUT32 INPUT7	254		
OUTPUT24 INPUT8	191	OUTPUT32 INPUT8	255		

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6. Troubleshooting

General

SYMPTOM	CAUSE	SOLUTION
No power up.	1. No AC power.	Connect Power Cord to AC outlet. Check AC circuit breaker.
	2. Blown fuse.	Replace fuse with specified type.

IR Control

SYMPTOM	CAUSE	SOLUTION
No source or zone selected from IR controller (keypad, hand-held remote, etc.). IR LED does NOT flash when button pressed.	1. IR controller not programmed.	Program IR controller.
	2. IR signal path wiring bad.	Verify IR signal path wiring. Check keypads, IR sensors, IR distribution blocks, V85 IR Input jack, IR emitters, etc.
No source or zone selected from IR controller (keypad, hand-held remote, etc.). IR LED DOES flash when button pressed.	1. Incorrect IR commands programmed (not V85 commands).	Verify/correct IR programming.
	2. UNIT ID DIP switches incorrect.	Verify/correct DIP switches.
Intermittant or no source or zone control from IR controller (keypad, hand-held remote, etc.). IR LED flickers or is lit constantly.	IR flooding.	Check IR receivers for ambient light or plasma TV flooding.
Incorrect source and/or zone selected.	Incorrect V85 IR commands programmed.	Verify/correct IR programming.

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RS-232 Control

SYMPTOM	CAUSE	SOLUTION
No source or zone selected from RS-232 controller.	1. RS-232 controller incorrectly programmed.	Verify/correct programming.
	2. RS-232 signal path wiring bad.	Verify RS-232 wiring. Check wire integrity and pin-out configuration.
	3. UNIT ID DIP switches incorrect.	Verify/correct DIP switches.
	4. BAUD RATE switches incorrect.	Verify/correct DIP switches.
Incorrect source and/or zone selected.	The V85 RS-232 commands were incorrectly programmed.	Verify/correct programming.
Acknowledgement &V85,ACK,xxx<CR> is not received within 200ms	1. The command was formatted incorrectly.	Verify/correct programming.
	2. An error has occurred in the V85.	Turn unit OFF, then back ON.
	3. Serial cable not connected or defective.	Connect or replace serial cable.
	4. V85 does not have power.	Connect power, check breakers.

Video Switching

SYMPTOM	CAUSE	SOLUTION
Video does not appear on desired TV/monitor. Front of V85 displays correct source/zone.	1. V85 output cables incorrectly routed. TV/monitor connected to incorrect output.	Verify/correct video output wiring.
	2. TV/monitor has incorrect input selected.	Select correct video input on TV/monitor.
	3. Video wiring bad/damaged.	Verify/correct video wiring.
	4. Video source not sending video (not connected, playing, or turned on).	Verify/correct video source problem.
Incorrect source displays on TV/monitor. Front of V5 displays correct source/zone.	V85 input cables incorrectly routed. Source connected to incorrect V85 input.	Verify/correct video input wiring.
Incorrect source displays on TV/monitor. Front of V85 displays incorrect source/zone.	Incorrect programming.	Verify/correct IR programming.
Component video sources display correctly, composite source does not display at all.	1. Composite video source not connected to same type (Y, P_B, P_R) input as TV/monitor.	Ensure same type (Y, P_B, P_R) input & output used for all composite video sources and TVs/monitors.
	2. TV/monitor has incorrect input selected.	Select correct composite video input on TV/monitor.

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Video Quality

SYMPTOM	CAUSE	SOLUTION
Video image is not optimal (i.e., fuzzy, blurry, smeared, ghosted, or dull).	1. In-house video wiring picking up noise from high-voltage lines or other source of interference.	Do not run video wiring near AC lines. If necessary, cross AC lines at 90 degrees.
	2. In-house coax runs have sharp bends or using poor quality cable.	Make gradual bends in coax when running wire. Use high-quality RG-6 coaxial cable.
	3. Video wiring bad/damaged.	Verify/correct video wiring.
Video image colors incorrect, scrambled, jagged lines, etc.	1. Component video cables connected to wrong type (Y, P_B, P_R) of inputs/outputs at V85 or TV/monitor.	Verify/correct component video input/output wiring.
	2. One or more component video connections (Y, P_B, P_R) not made.	Verify/correct component video input/output wiring.

Technical Support

If, after carefully following the steps in the **Troubleshooting** section, you are unable to resolve issues with the installation or operation of the V85, please call ELAN Technical Support at 1-800-622-ELAN (3526).

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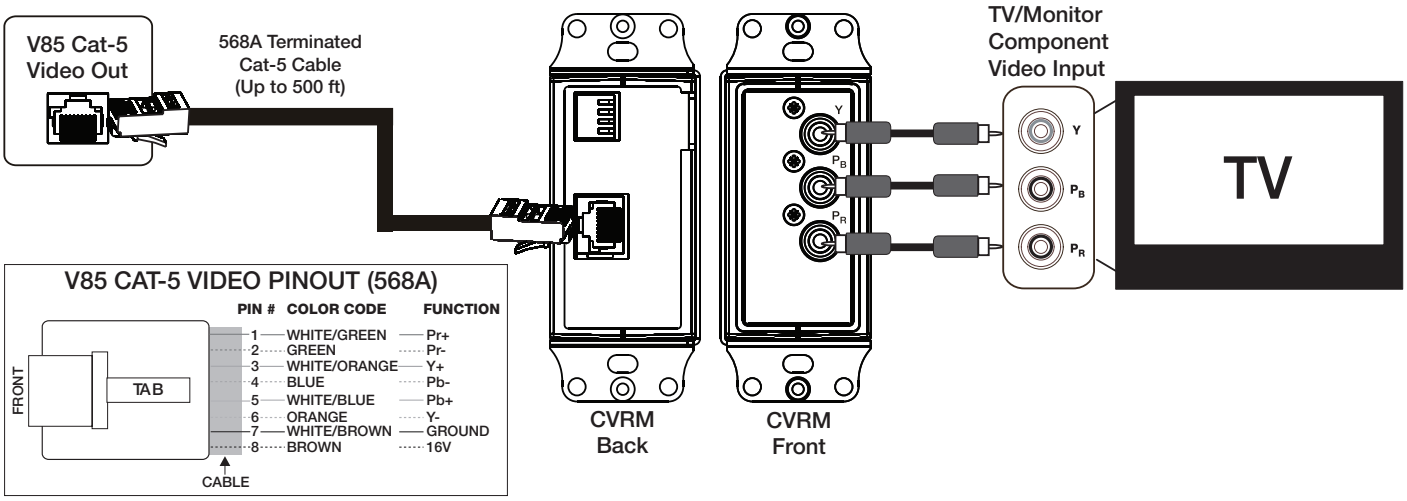
Appendix A: Component Video Receive Module (CVRM)

The Component Video Receive Module (CVRM) extends Hi-Definition component video wire runs up to 500 feet over standard Cat-5 cable. The CVRM is ideal for video distribution when using an ELAN Component Video Controller such as the V85 to zones equipped with Hi-Definition video displays.

Cat-5 video outputs from an ELAN V85 are connected to the RJ-45 input on the back of the CVRM (See V85 Cat-5 Video Pinout Below). Component video connections on the front of the CVRM are then connected to the component video inputs of a TV or other video display.



The CVRM module includes a decora faceplate and pre-installed bracket for mounting in a J-box*. Alternatively, the bracket may be removed and the unit may be mounted to the back of a TV using the included velcro fastener or mounted to the wall using the CVRM's screw keyholes as shown below.

1. Connect a 568A terminated Cat-5 cable to the RJ-45 jack located on the back of the CVRM module.

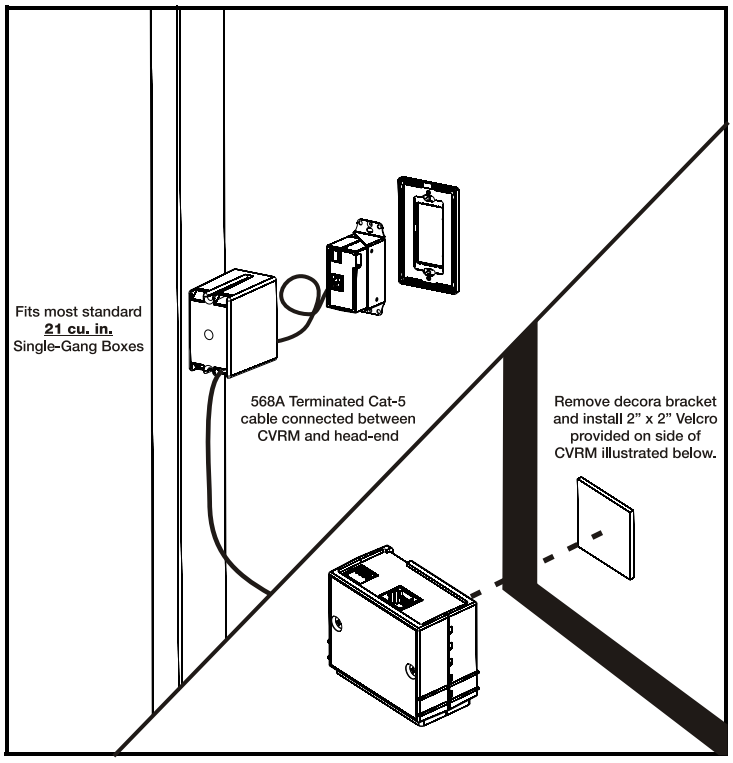
Note: ELAN recommends looping the Cat-5 cable prior to routing it out of the back of the single-ganged J-box punch outs, see illustration below.

2. Secure the CVRM's bracket to the single-gang box or low-voltage trim ring and install the faceplate

3. At the head end, connect the other end of the Cat-5 cable (568A terminated) to the V85 Cat-5 Video Output

4. Back in the local zone, connect the video outputs from the CVRM module to the component video input jacks on the TV or other video display

**Carlon Model B122A J-box or trim ring is recommended for use with the CVRM*



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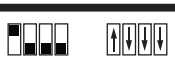
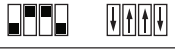
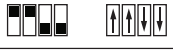
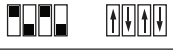
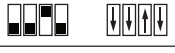
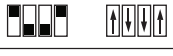
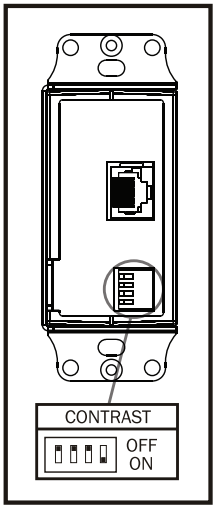
CVRM DIP Switch Settings

DIP Switches on the back of the CVRM module provide proper Contrast settings for variable lengths of Cat-5 cable, up to 500 feet. See the DIP Switch Setting Table below for proper settings versus length.

Contrast DIP Switch Settings

Cat-5 Cable Length (Ft)	DIP Switch Setting	Cat-5 Cable Length (Ft)	DIP Switch Setting
Factory Default (50 ft.)		250 Ft	
10 Ft		290 Ft	
25 Ft		330 Ft	
50 Ft		370 Ft	
90 Ft		410 Ft	
130 Ft		450 Ft	
170 Ft		490 Ft	
210 Ft		530 Ft	



Specifications

RJ45 Input Impedence: 50 Ohm (4.0V max)
Coaxial Output Impedance: 75 Ohm, 1V pk-pk (3.5V max)
Bandwidth: 150MHz (125MHz @ 500 ft.)
THD: -50dBc
Gain: 1.0
Power: Supplied from V85
Pin-out: 568A

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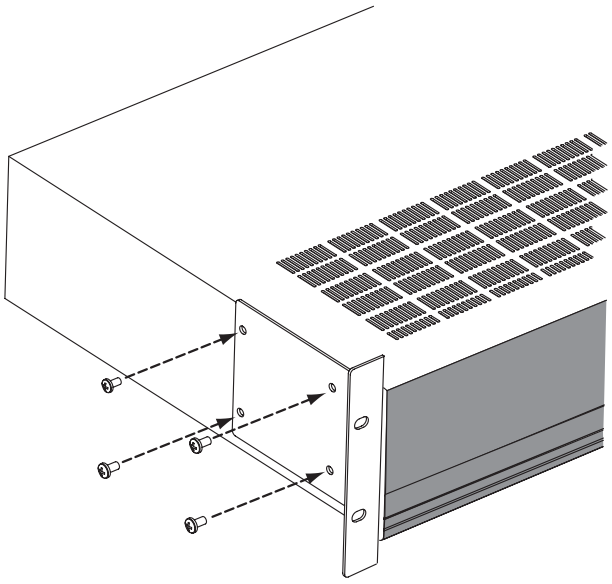
Appendix B: Rack Mounting

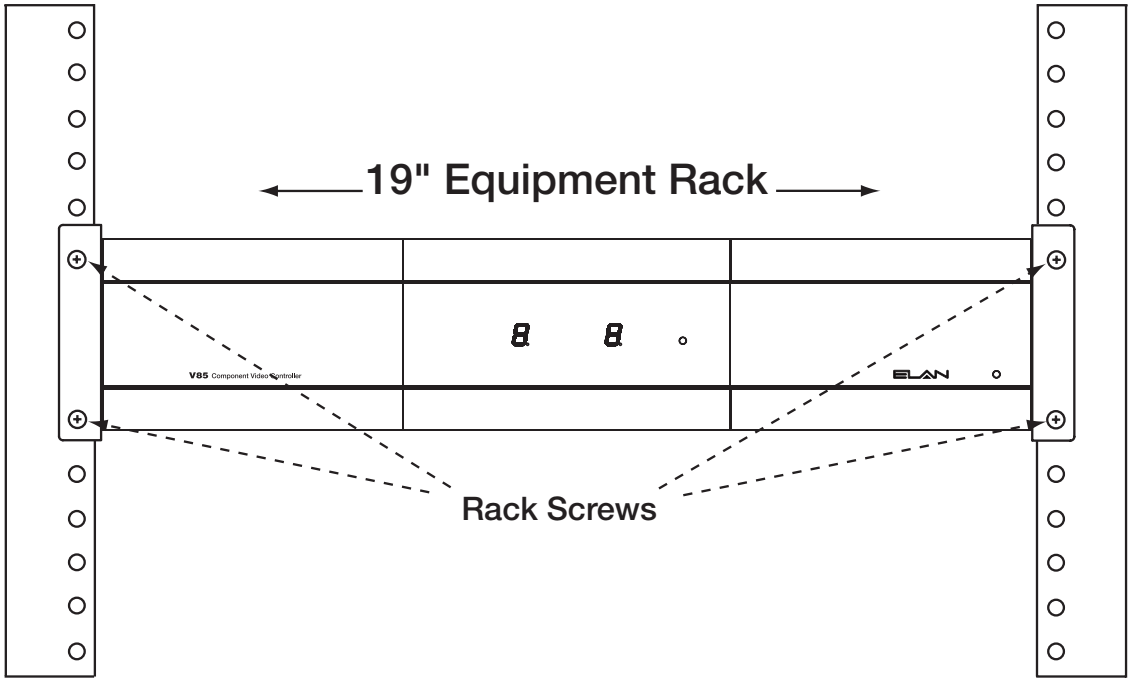
Rack-Mount Brackets

When mounting the V85 Component Video Controller in an equipment rack, use the included rack mount brackets for secure mounting and proper ventilation. The V85 requires two rack spaces. To install the V85 into a standard 19" equipment rack:

1. Mount the brackets onto the V85 chassis from the front. Ensure that the brackets are flush with the front of the V85. Install each of the eight screws (included) through the side mounting flanges into the holes in the sides of the unit as shown below. Hand tighten screws! Over-tightening could cause damage to the V85.



2. Once the brackets are securely mounted, install the entire assembly into a standard 19" equipment rack from the front using four rack screws (not included).



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Appendix C: Specifications

Video Inputs	
Connectors (8 Sets) Component Video Inputs	Gold-Plated Component Video Inputs (Y, Pb, Pr) 1V Peak-to-Peak Nominal
Input Impedance	75 Ohm
Video Outputs	
Zone Output Connectors	(8 Sets) Gold-Plated RCA Component Video Inputs, Y, Pb, Pr
Buffered Loop Output Connectors	(8 Sets) Gold-Plated RCA Component Video Inputs, Y, Pb, Pr
Cat-5 Zone Output Connectors	(8) RJ-45 jacks
Component Video Outputs	1V Peak-to-Peak Nominal
Output Impedance	75 Ohm
Video Gain	Unity
Gain Flatness	50 MHz
Bandwidth (-3dB)	DC to 125MHz Minimum
S/N Ratio	>65dB
Differential Phase	0.02 Deg Typical
Differential Gain	0.02% Typical
Crosstalk	>85 dB @ 5MHz; > 83 dB @ 10MHz
Control Ports	
IR Input ports	3.5mm stereo jack (Tip-IR, Ring-Ground, Sleeve-+12V)
IR Output port	3.5mm mono jack (Tip-IR, Sleeve-Ground)
RS-232 In/Thru ports	(2) DB9 connectors
VIANET In/Thru ports	(2) RJ45 jacks
Power	
AC Power Requirements	120 VAC, 90 Watts (V85) FUSE: 1.25A 240 VAC, 105 Watts (V85-240) FUSE: 750mA
Dimensions/Weight	
Dimensions w/ Feet (2U w/o Feet)	17 W X 4-1/8 H X 14 D (in.) / 432 W X 105 H X 356 D (mm)
Weight	12.5 lbs / 5.7 kgs

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Limited Warranty

ELAN HOME SYSTEMS L.L.C. (“ELAN”) warrants the ELAN V85 Component Video Controller to be free from defects in materials and workmanship for the period of two years (2 years) from date of purchase. If within the applicable warranty period above purchaser discovers that such item was not as warranted above and promptly notifies ELAN in writing, ELAN shall repair or replace the item at the company’s option. This warranty shall not apply (a) to equipment not manufactured by ELAN, (b) to equipment which shall have been installed by other than an ELAN authorized installer, (c) to installed equipment which is not installed to ELAN’s specifications, (d) to equipment which shall have been repaired or altered by others than ELAN, (e) to equipment which shall have been subjected to negligence, accident, or damage by circumstances beyond ELAN’s control, including, but not limited to, lightning, flood, electrical surge, tornado, earthquake, or other catastrophic events beyond ELAN’s control, or to improper operation, maintenance or storage, or to other than normal use of service. With respect to equipment sold by, but not manufactured by ELAN, the warranty obligations of ELAN shall in all respects conform to the warranty actually extended to ELAN by its supplier. The foregoing warranties do not cover reimbursement for labor, transportation, removal, installation or other expenses which may be incurred in connection with repair or replacement.

Except as may be expressly provided and authorized in writing by ELAN, ELAN shall not be subject to any other obligations or liabilities whatsoever with respect to equipment manufactured by ELAN or services rendered by ELAN.

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