



High-Performance Patching Systems

Designed Expressly For  
Broadcast, Production, Post-Production & A/V

Product Guide 7.0



High-Bandwidth Video



Component Video



AES Audio



Audio TT



Audio 1/4"



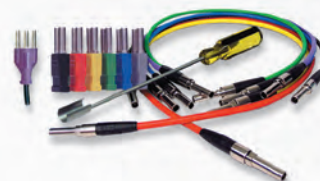
RS-422  
Active



RS-422 Programmable



Integrated



Accessories

# High-Performance Patching Systems

Bittree was established in 1978 with the goal of providing high-quality patching systems to the broadcast, entertainment and A/V industries. In the 35 years since then, we've earned an international reputation from customers like you for innovation, quality and customer satisfaction.

We offer a complete line of patching products, including audio, video, data and integrated systems. To ensure the durability, quality and responsiveness you need, all of our patching products are designed, manufactured, tested and warehoused in our Glendale, California plant, right in the heart of the entertainment industry.

## Industry-Leading Innovation

Bittree is committed to continually improving the patching process for our broad base of users. Innovation at Bittree comes from two areas: System Design and Product Components.

On the system level, we were the first to design a 3-pin rear-connection interface. This system employs a proven "tuning fork" hermaphroditic contact, while still incorporating the positive aspects of crimp-on, snap-in technology. The result is a patching system that you'll find reliable, simple to install and easy to re-configure.

We were also the first to develop programmable patchbays, which allow users to change the normals and grounding of individual circuits just by changing the shunt arrangement under the designation strips or within the patchbay itself. More recently, we added the ability to program switched grounds, in addition to bussed, isolated and looped grounds as before.

And finally, our Integrated patchbays have answered space and functionality requirements within the multimedia environment, by combining audio, video and data patching in one integrated unit.

On the component level, our advanced research and development of base materials, processing techniques and construction methodology continues to create superior products that perform beyond your highest expectations.

Over the years our patchbays have been modified to conform to the increasingly rigid specifications and higher requirements set by systems engineers. Similarly, the new digital transmission standards have been met and even exceeded through a series of new jacks, patchcords and interconnection schemes.

## Quality You Can Count On

All Bittree products are stringently designed, assembled and tested to meet your rigid quality standards.

We specify only the best materials, and all components are selected from established industry sources. Then, to ensure long-term functionality and dependability, each Bittree



product is rigorously tested – not only to industry standards but also to the specific demands and expectations of technicians in the field.

This meticulous attention to detail ensures that every Bittree product is as robust as it is precise, delivering a patching system you can count on again and again.

## Expert, Customized Service

When you call Bittree, you're not only calling the leader in patching systems, but also the leader in customer service. Our knowledgeable and experienced Sales Consultants will help you select the products and systems that best serve your needs.

We know information and documentation is critical to your success. That's why we've upgraded our web site to bring you the industry's most valuable collection of tools and resources. Our web site now features technical specs, front/rear panel illustrations, downloadable CAD files and normal/ground schematics for each and every product. In addition, you can organize information in the MyProjects and MyFavorites sections, keep your deliveries and invoices arriving where they should through the User and Company Profiles, and print or email Product Spec Sheets for your bid packages.

At Bittree, we're aware that fast delivery is critical to your business. That's why we stock an extensive inventory of patchbays, patchcords, tools and accessories, many of which are available overnight from our online Patchcord Store. We're committed to delivering the patching solution you need – when you need it.

This catalog contains many but not all of our patching products. Visit our web site at [www.bittree.com](http://www.bittree.com) for additional product information.

**Call our Project Consultants at  
(800) 500-8142 or (818) 500-8142  
or log onto our web site at [www.bittree.com](http://www.bittree.com).**



**HIGH-BANDWIDTH VIDEO** **2**



**E-SERIES HIGH-BANDWIDTH VIDEO** **15**



**COMPONENT VIDEO** **19**



**AES AUDIO** **28**



**AUDIO TT (BANTAM)** **31**



**AUDIO 1/4" (LONG FRAME)** **58**



**RS-422 ACTIVE** **89**



**RS-422 PROGRAMMABLE** **92**



**INTEGRATED (AUDIO, VIDEO & DATA)** **96**



**ACCESSORIES** **99**

HB VIDEO

E-SERIES VIDEO

COMP. VIDEO

AES AUDIO

AUDIO TT

AUDIO 1/4"

RS-422 ACTIVE

RS-422 PROG.

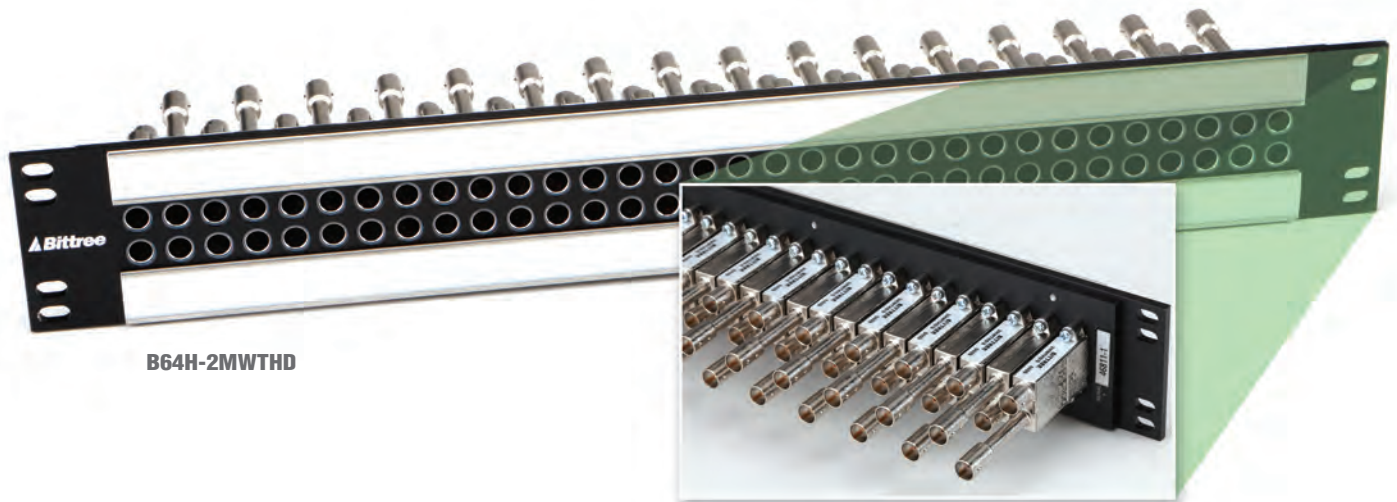
INTEGRATED

ACCESSORIES

Important notice: All possible care has been taken in preparing this catalog. Statements and specifications are believed true but cannot be guaranteed and therefore we are not responsible for any inaccuracies. Catalog data alone should not be used as the basis for design or to establish specification limits. Bittree reserves the right to change or alter specifications or materials without notice, provided the function and performance of the product remains reasonably similar or is improved.



# HIGH-BANDWIDTH VIDEO



B64H-2MWTHD

## Overview

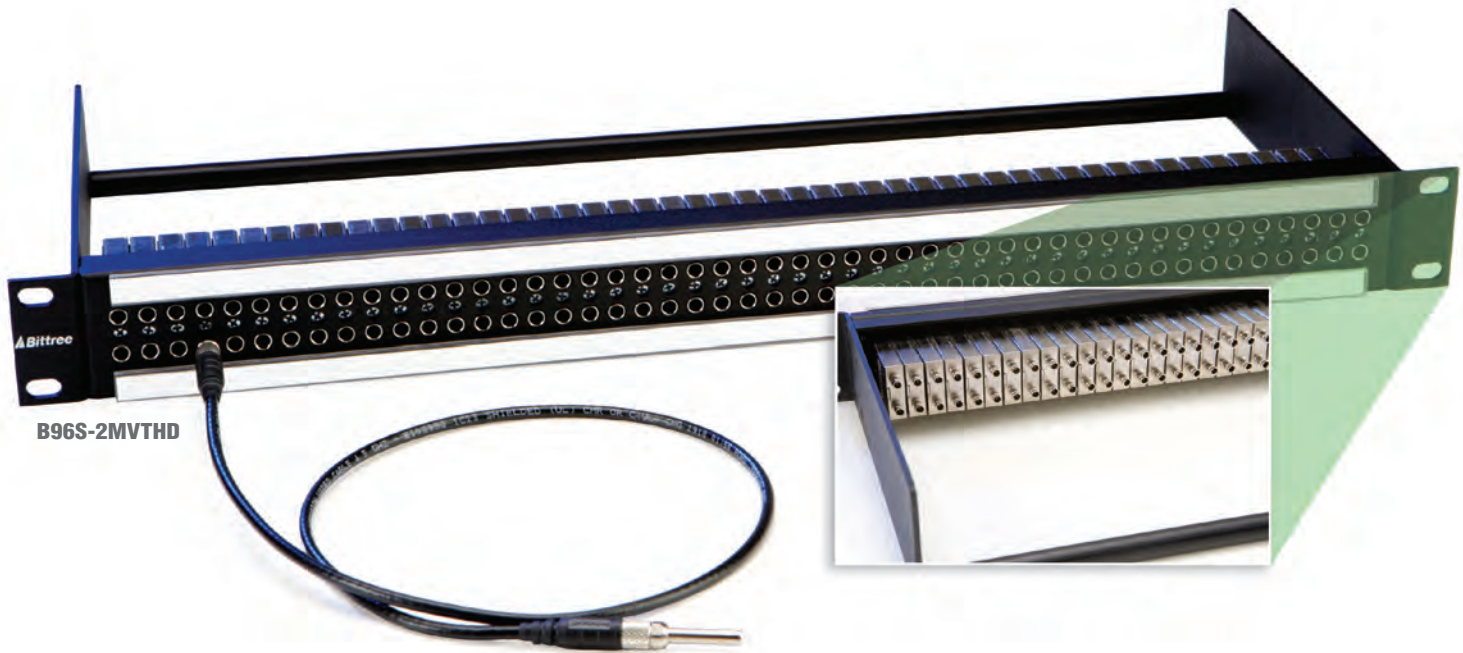
Bittree offers a full line of reliable high-bandwidth video patchbays, ideal for SD/SDI, HD/SDI, 3 Gb/s and 3-D applications

Housed in a solid, powder-coated aluminum panel and featuring the industry's finest fit-and-finish, our high-bandwidth video patchbays are available in Micro-Video, Mini-WECO and WECO formats.

The Micro-Video patchbay boasts the industry's highest-density format at 2x48, in either a 1 or 1.5 RU size. Mini-WECO patchbays feature a high-density 32 jacks per row, and are available in 1x32, 2x32 or 3x32 configurations; rack sizes include 1, 1.5 or 2 RU. Meanwhile, the more-spacious WECO patchbays feature 24, 26 or 28 jacks per row, and are available in 1, 2 or 3 row configurations; rack sizes include 1, 1.5 or 2 RU.

Bittree's high-bandwidth video patchbays are designed for exceptional performance in high-bandwidth applications such as 3-D, HDTV, SDI, AES and high-resolution computer graphics, as well as in conventional analog applications such as monitor routing, primary routing, re-routing, router backup and video distribution. All standard Bittree video jacks are SMPTE 292M and SMPTE 424M compliant.

**Notes on our Micro-Video, Mini-WECO and WECO formats:** Most video patching systems in the U.S. use the WECO standard, developed by the Western Electric Company in the middle of the 20th century. WECO patchbays are usually considered easier to work with due to their spacious jack configuration (24-26-28 jacks per row), while Mini-WECO patchbays are ideal for higher-density patching (32 jacks per row). More recently, the demand for an even higher-density format led to the development of our Micro-Video Patchbay (48 jacks per row), which is ideal for small environments such as mobile production.



- **Highest-Density Micro-Video format features 48 jacks per row**
- **2x48 configuration; 1 and 1.5 RU sizes**
- **HD/SDI, SD/SDI, 3Gb/s and 3-D applications**
- **SMPTE 292M and SMPTE 424M compliant**

Our highest-density, high-bandwidth Micro-Video patchbays meet all SMPTE 292M and 424M specifications, and features industry-standard DIN 1.0 / 2.3 rear terminations. In addition to the unparalleled performance of the video jacks, the design of the patchbay itself sets it apart from the competition in three ways. First, the patchbay features a lacing bar to help organize rack wiring. Second, the design provides an innovative option to recess the front panel 1" back to keep patchcords from protruding beyond the rack, saving space and ensuring snug connections in tight quarters. Third, the jacks are assembled to the patchbay with a captive front mounting-screw for easy maintenance.

## High-Bandwidth Micro Video Patchbay Features

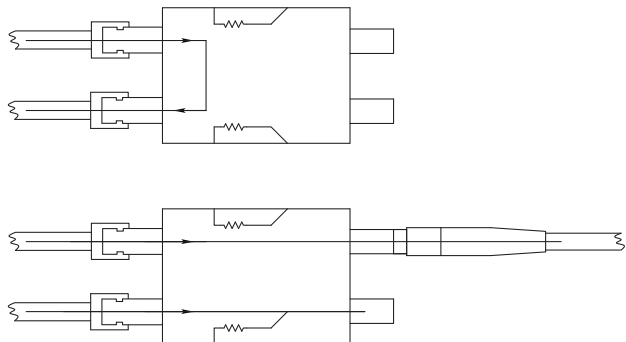
- Highest-density video jack count available, 2 x 48
- High-bandwidth performance for SD/SDI, HD/SDI, 3 Gb/s and 3-D applications
- Available in 1 or 1.5 rack unit (RU) sizes
- Jacks conform to SMPTE 292M and SMPTE 424M
- True 75ohm impedance with low return loss
- DIN 1.0 / 2.3 rear termination
- Jacks are isolated from the front panel, and have a captive front mounting-screw for easy maintenance
- Integrated lacing bar helps organize rack wiring
- Front panel can be recessed back 1" to reduce patchcord protrusion beyond the rack
- Panels made from solid, powder-coated aluminum
- Extra wide designation strips

## High-Bandwidth Micro Video Patchbay Options

- Jacks may be ordered in four different configurations:
  - Dual body self-normaling, terminating (2MVTHD)
  - Dual body self-normaling, non-terminating (2MVNHD)
  - Dual body non-normaling, terminating (1MVTHD)
  - Dual body non-normaling, non-terminating (1MVNHD)

### Full-Normal / Terminating

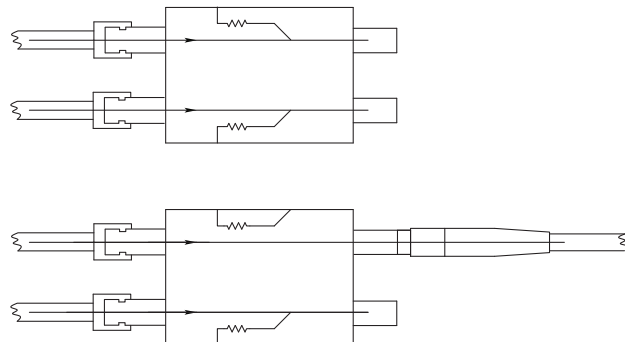
Features a dual-body video jack. Signal flows through jack in un-patched state. When a patchcord is inserted, the signal path follows the patchcord, and the opposite side of the jack is terminated with a 75 Ohm resistor.



2MVTHD

### Non-Normal / Terminating

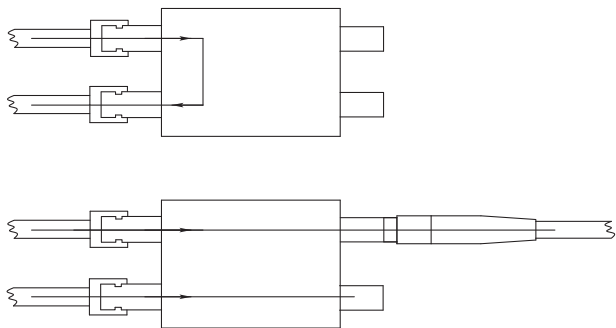
Features a dual-body video jack. When a patchcord is inserted, the signal path follows the patchcord. When patchcord is removed, circuit is terminated with a 75 Ohm resistor.



1MVTHD

### Full-Normal / Non-Terminating

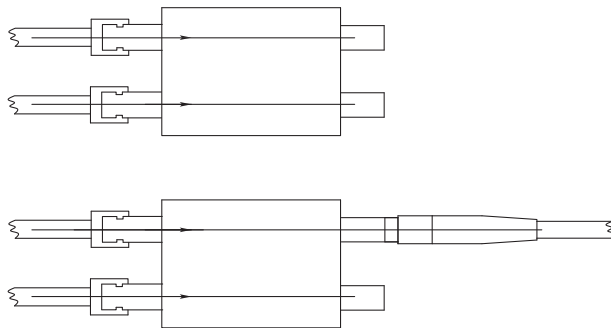
Features a dual-body video jack. Signal flows through jack in un-patched state. When a patchcord is inserted, the signal path follows the patchcord.



2MVNHD

### Non-Normal / Non-Terminating

Features a dual-body video jack. When a patchcord is inserted, the signal path follows the patchcord.



1MVNHD

DESCRIPTION	PRODUCT NUMBER
<b>2x48, 1 RU, Black</b>	
2x48, 1 RU, Black, Dual Body Non-Normal / Non-Terminating	B96S-1MVNHD
2x48, 1 RU, Black, Dual Body Non-Normal / Terminating	B96S-1MVTHD
2x48, 1 RU, Black, Dual Body Full-Normal / Non-Terminating	B96S-2MVNHD
2x48, 1 RU, Black, Dual Body Full-Normal / Terminating	B96S-2MVTHD
<b>2x48, 1.5 RU, Black</b>	
2x48, 1.5 RU, Black, Dual Body Non-Normal / Non-Terminating	B96H-1MVNHD
2x48, 1.5 RU, Black, Dual Body Non-Normal / Terminating	B96H-1MVTHD
2x48, 1.5 RU, Black, Dual Body Full-Normal / Non-Terminating	B96H-2MVNHD
2x48, 1.5 RU, Black, Dual Body Full-Normal / Terminating	B96H-2MVTHD

For fast, easy ordering visit [bittree.com](http://bittree.com)

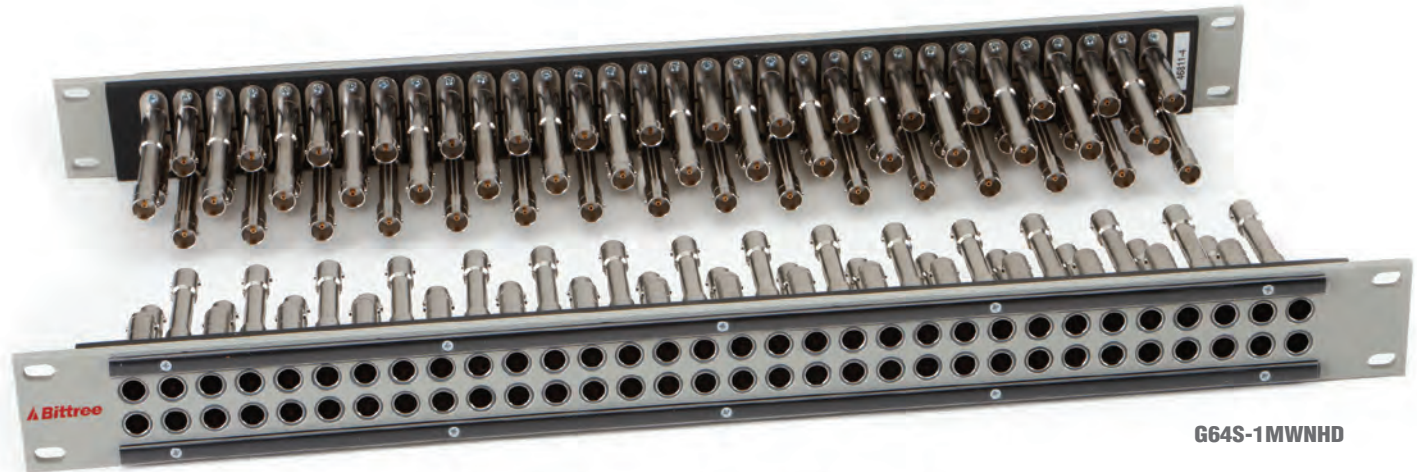
**MICRO-VIDEO PATCH CORDS**

VPMV 24 00

Color  
00= Black

Length  
in Inches (cm)  
24 (61)





- **High-Density Mini-WECO format features 32 jacks per row**
- **1x32, 2x32 or 3x32 configurations; 1, 1.5 or 2 RU sizes**
- **HD/SDI, SD/SDI, 3Gb/s and 3-D applications**
- **SMPTE 292M and SMPTE 424M compliant**

Our wide range of Mini-WECO Video high-bandwidth patchbays are designed to meet all of your patching needs, from high bit-rate digital signals to base-band analog. Bittree Mini-WECO video patchbays are ideal for high-bandwidth applications such as HDTV, SDI, AES and high-resolution computer graphics, as well as in conventional analog applications such as monitor routing, primary routing, re-routing, router backup and video distribution.

## High-Bandwidth Mini-WECO Video Patchbay Features

- High-density video jack count of 32 jacks per row
- High-bandwidth performance for SD/SDI, HD/SDI, and 3 Gb/s applications
- Jacks conform to SMPTE 292M and SMPTE 424M
- True 75ohm impedance with low return loss
- Panels made from 3/16" solid aluminum
- Staggered BNC rear interface
- Durable, scratch-resistant powder-coat finish
- Jacks are isolated from the panel
- Extra wide designation strips

## High-Bandwidth Mini-WECO Video Patchbay Options

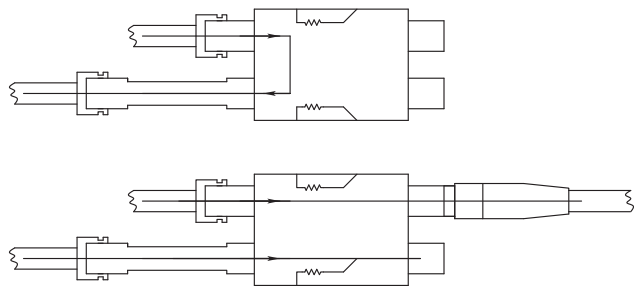
- Video panel can be configured 1x32, 2x32 or 3x32
- Available in 1, 1.5 or 2 rack units (RU)
- Black or gray front panel
- Jacks may be ordered in four different configurations:
  - Dual body self-normaling, terminating (2MWTND)
  - Dual body self-normaling, non-terminating (2MWNHD)
  - Single body non-normaling, terminating (1MWTND)
  - Single body non-normaling, non-terminating (1MWNHD)



DESCRIPTION	PRODUCT NUMBER
<b>1x32, 1 RU, Black</b>	
1x32, 1 RU, Black, Single Body Non-Normal / Non-Terminating	B32S-1MWNHD
1x32, 1 RU, Black, Single Body Non-Normal / Terminating	B32S-1MWTHD
<b>1x32, 1 RU, Gray</b>	
1x32, 1 RU, Gray, Single Body Non-Normal / Non-Terminating	G32S-1MWNHD
1x32, 1 RU, Gray, Single Body Non-Normal / Terminating	G32S-1MWTHD
<b>2x32, 1 RU, Black</b>	
2x32, 1 RU, Black, Single Body Non-Normal / Non-Terminating	B64S-1MWNHD
2x32, 1 RU, Black, Single Body Non-Normal / Terminating	B64S-1MWTHD
2x32, 1 RU, Black, Dual Body Full-Normal / Non-Terminating	B64S-2MWNHD
2x32, 1 RU, Black, Dual Body Full-Normal / Terminating	B64S-2MWTHD
<b>2x32, 1.5 RU, Black</b>	
2x32, 1.5 RU, Black, Single Body Non-Normal / Non-Terminating	B64H-1MWNHD
2x32, 1.5 RU, Black, Single Body Non-Normal / Terminating	B64H-1MWTHD
2x32, 1.5RU, Black, Dual Body Full-Normal / Non-Terminating	B64H-2MWNHD
2x32, 1.5 RU, Black, Dual Body Full-Normal / Terminating	B64H-2MWTHD
<b>2x32, 2 RU, Black</b>	
2x32, 2 RU, Black, Single Body Non-Normal / Non-Terminating	B64T-1MWNHD
2x32, 2RU, Black, Single Body Non-Normal / Terminating	B64T-1MWTHD
2x32, 2 RU, Black, Dual Body Full-Normal / Non-Terminating	B64T-2MWNHD
2x32, 2 RU, Black, Dual Body Full-Normal / Terminating	B64T-2MWTHD
<b>2x32, 1 RU, Gray</b>	
2x32, 1 RU, Gray, Single Body Non-Normal / Non-Terminating	G64S-1MWNHD
2x32,1 RU, Gray, Single Body Non-Normal / Terminating	G64S-1MWTHD
2x32, 1 RU, Gray, Dual Body Full-Normal / Non-Terminating	G64S-2MWNHD
2x32, 1 RU, Gray, Dual Body Full-Normal / Terminating	G64S-2MWTHD
<b>2x32, 1.5 RU, Gray</b>	
2x32, 1.5 RU, Gray, Single Body Non-Normal / Non-Terminating	G64H-1MWNHD
2x32, 1.5 RU, Gray, Single Body Non-Normal / Terminating	G64H-1MWTHD
2x32, 1.5 RU, Gray, Dual Body Full-Normal / Non-Terminating	G64H-2MWNHD
2x32, 1.5 RU, Gray, Dual Body Full-Normal / Terminating	G64H-2MWTHD
<b>2x32, 2 RU, Gray</b>	
2x32, 2 RU, Gray, Single Body Non-Normal / Non-Terminating	G64T-1MWNHD
2x32, 2 RU, Gray, Single Body Non-Normal / Terminating	G64T-1MWTHD
2x32, 2 RU, Gray, Dual Body Full-Normal / Non-Terminating	G64T-2MWNHD
2x32, 2 RU, Gray, Dual Body Full-Normal / Non-Terminating	G64T-2MWNHD
<b>3x32, 2 RU, Black</b>	
3x32, 2 RU, Black, Single Body Non-Normal / Non-Terminating	B96T-1MWNHD
3x32, 2 RU, Black, Single Body Non-Normal / Terminating	B96T-1MWTHD
3x32, 2 RU, Black, Dual Body Full- Normal / Non-Terminating	B96T-2MWNHD
3x32, 2 RU, Black, Dual Body Full- Normal / Terminating	B96T-2MWTHD
<b>3x32, 2 RU, Gray</b>	
3x32, 2 RU, Gray, Single Body Non-Normal / Non-Terminating	G96T-1MWNHD
3x32, 2 RU, Gray, Single Body Non-Normal / Terminating	G96T-1MWTHD
3x32, 2 RU, Gray, Dual Body Full- Normal / Non-Terminating	G96T-2MWNHD
3x32, 2 RU, Gray, Dual Body Full- Normal / Terminating	G96T-2MWTHD

### Full-Normal / Terminating

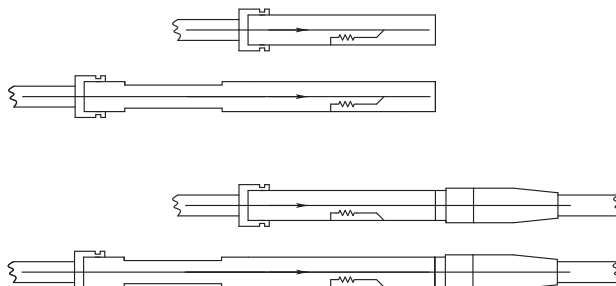
Features a dual-body video jack. Signal flows through jack in un-patched state. When a patchcord is inserted, the signal path follows the patchcord, and the opposite side of the jack is terminated with a 75 Ohm resistor.



2Mwthd

### Non-Normal / Terminating

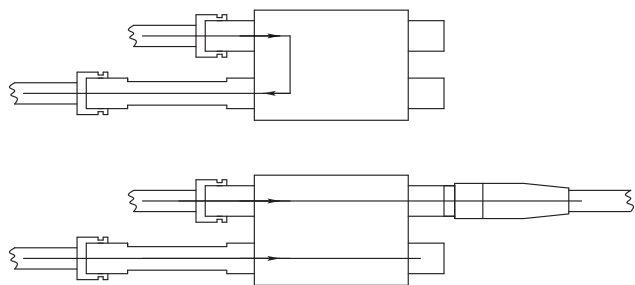
Features a dual-body video jack. When a patchcord is inserted, the signal path follows the patchcord. When patchcord is removed, circuit is terminated with a 75 Ohm resistor.



1Mwthd

### Full-Normal / Non-Terminating

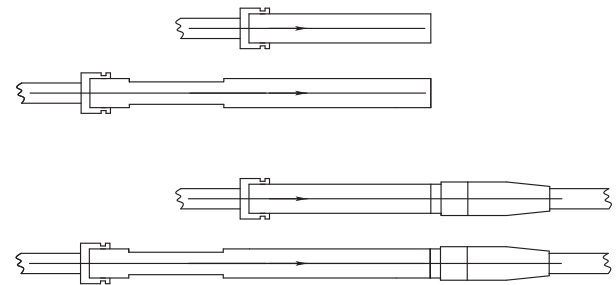
Features a dual-body video jack. Signal flows through jack in un-patched state. When a patchcord is inserted, the signal path follows the patchcord.



2Mwnhd

### Non-Normal / Non-Terminating

Features a dual-body video jack. When a patchcord is inserted, the signal path follows the patchcord.



1Mwnhd

For fast, easy ordering visit [bittree.com](http://bittree.com)



**MINI-WECO LOOPING PLUGS**

LPM 75 06

Color  
06 = Blue



**MINI-WECO PATCH CORDS**

VPCM 24 00 - 75

Color  
00= Black  
02= Red  
04= Yellow  
05= Green  
06= Blue  
07= Purple

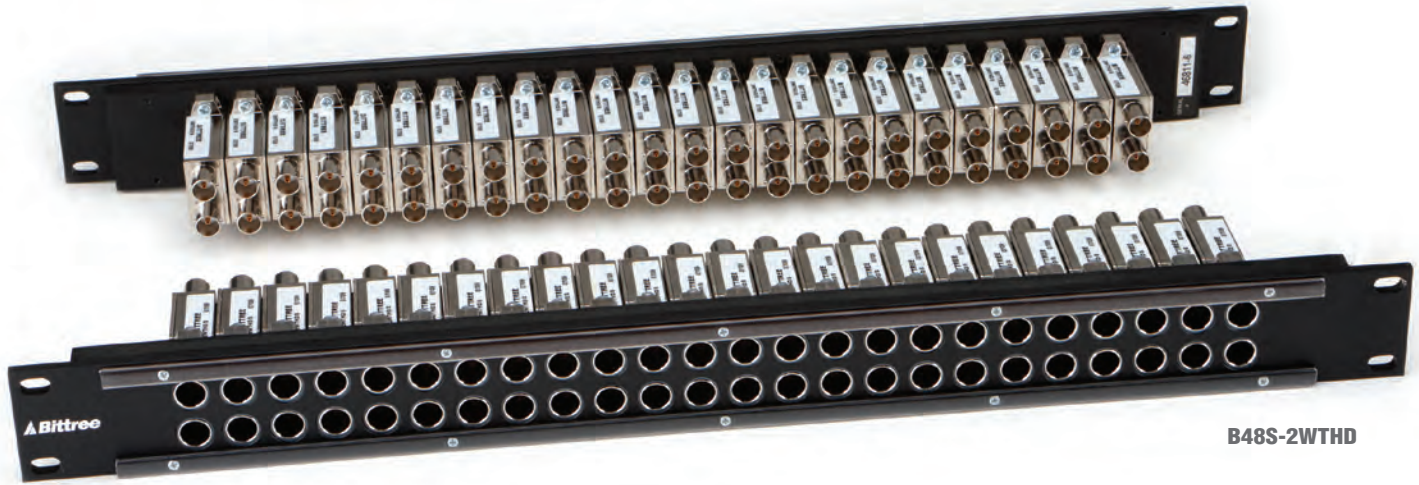
Length in Inches (cm)  
24 (61)  
36 (92)  
48 (122)  
60 (153)  
72 (184)

Our easy-to-use Ordering Codes let you order the exact patching system you need. As shown in the chart below, simply choose the option you want for each specification.

**HIGH-BANDWIDTH MINI-WECO ORDERING CODES**

**B 64 T - 2 MW N HD**

- Bandwidth**  
HD = High Definition (3GHz)
- Jack Termination**  
N = Non-Terminating  
T = Terminating
- Jack Standard**  
MW = Mini-Weco
- Jack Type**  
2 = Normaling  
1 = Non-Normaling
- Panel Height**  
S = 1RU  
H = 1.5RU  
T = 2RU
- Quantity of Patch Ports**  
32 = 1x32 (1RU Only)  
64 = 2x32
- Color Choice**  
B = Black  
G = Gray



B48S-2WTHD

- Spacious WECO format features 24, 26 or 28 jacks per row
- 1, 2 or 3 row configurations; 1, 1.5 or 2 RU sizes
- HD/SDI, SD/SDI, 3Gb/s and 3-D applications
- SMPTE 292M and SMPTE 424M compliant

Our wide range of WECO Video high-bandwidth patchbays are designed to meet all of your patching needs, from high bit-rate digital signals to base-band analog. Bittree WECO video patchbays are ideal for high-bandwidth applications such as HDTV, SDI, AES and high-resolution computer graphics, as well as in conventional analog applications such as monitor routing, primary routing, re-routing, router backup and video distribution.

### High-Bandwidth WECO Video Patchbay Features

- High-bandwidth performance for SD/SDI, HD/SDI, and 3 Gb/s applications
- Jacks conform to SMPTE 292M and SMPTE 424M
- True 75ohm impedance with low return loss
- Panels made from 3/16" solid aluminum
- Durable, scratch-resistant powder-coat finish
- Jacks are isolated from the panel
- Extra wide designation strips

### High-Bandwidth WECO Video Patchbay Options

- Spacious video jack counts of 24, 26 or 28 jacks per row, in one or two row configurations
- Available in 1, 1.5 or 2 rack units (RU)
- Black or gray front panel
- Jacks may be ordered in four different configurations:
  - Dual body self-normaling, terminating (2WTHD)
  - Dual body self-normaling, non-terminating (2WNHD)
  - Single body non-normaling, terminating (1WTHD)
  - Single body non-normaling, non-terminating (1WNHD)

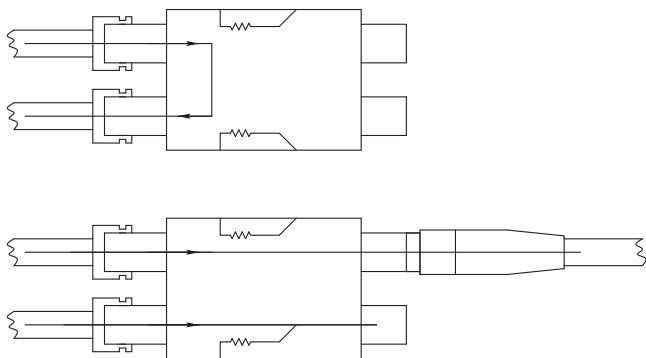


DESCRIPTION	PRODUCT NUMBER
<b>1x24, 1 RU, Black</b>	
1x24, 1 RU, Black, Single Body Non-Normal / Non-Terminating	B24S-1WNHD
1x24, 1 RU, Black, Single Body Non-Normal / Terminating	B24S-1WTHD
<b>1x24, 1 RU, Gray</b>	
1x24, 1 RU, Gray Single Body Non-Normal / Non-Terminating	G24S-1WNHD
1x24, 1 RU, Gray Single Body Non-Normal / Terminating	G24S-1WTHD
<b>1x26, 1 RU, Black</b>	
1x26, 1 RU, Black, Single Body Non-Normal / Non-Terminating	B26S-1WNHD
1x26, 1 RU, Black, Single Body Non-Normal / Terminating	B26S-1WTHD
<b>1x26, 1 RU, Gray</b>	
1x26, 1 RU, Gray Single Body Non-Normal / Non-Terminating	G26S-1WNHD
1x26, 1 RU, Gray Single Body Non-Normal / Terminating	G26S-1WTHD
<b>1x28, 1 RU, Black</b>	
1x28, 1 RU, Black, Single Body Non-Normal / Non-Terminating	B28S-1WNHD
1x28, 1 RU, Black, Single Body Non-Normal / Terminating	B28S-1WTHD
<b>1x28, 1 RU, Gray</b>	
1x28, 1 RU, Gray Single Body Non-Normal / Non-Terminating	G28S-1WNHD
1x28, 1 RU, Gray Single Body Non-Normal / Terminating	G28S-1WTHD
<b>2x24, 1 RU, Black</b>	
2x24, 1 RU, Black, Single Body Non-Normal / Non-Terminating	B48S-1WNHD
2x24, 1 RU, Black, Dual Body Non-Normal / Terminating	B48S-1WTHD
2x24, 1 RU, Black, Dual Body Full-Normal / Non-Terminating	B48S-2WNHD
2x24, 1 RU, Black, Dual Body Full-Normal / Terminating	B48S-2WTHD
<b>2x24, 1.5 RU, Black</b>	
2x24, 1.5 RU, Black, Single Body Non-Normal / Non-Terminating	B48H-1WNHD
2x24, 1.5 RU, Black, Dual Body Non-Normal / Terminating	B48H-1WTHD
2x24, 1.5 RU, Black, Dual Body Full-Normal / Non-Terminating	B48H-2WNHD
2x24, 1.5 RU, Black, Dual Body Full-Normal / Terminating	B48H-2WTHD
<b>2x24, 2 RU, Black</b>	
2x24, 2 RU, Black, Single Body Non-Normal / Non-Terminating	B48T-1WNHD
2x24, 2 RU, Black, Dual Body Non-Normal / Terminating	B48T-1WTHD
2x24, 2 RU, Black, Dual Body Full-Normal / Non-Terminating	B48T-2WNHD
2x24, 2 RU, Black, Dual Body Full-Normal / Terminating	B48T-2WTHD
<b>2x24, 1 RU, Gray</b>	
2x24, 1 RU, Gray, Single Body Non-Normal / Non-Terminating	G48S-1WNHD
2x24, 1 RU, Gray, Dual Body Non-Normal / Terminating	G48S-1WTHD
2x24, 1 RU, Gray, Dual Body Full-Normal / Non-Terminating	G48S-2WNHD
2x24, 1 RU, Gray, Dual Body Full-Normal / Terminating	G48S-2WTHD
<b>2x24, 1.5 RU, Gray</b>	
2x24, 1.5 RU, Gray, Single Body Non-Normal / Non-Terminating	G48H-1WNHD
2x24, 1.5 RU, Gray, Dual Body Non-Normal / Terminating	G48H-1WTHD
2x24, 1.5 RU, Gray, Dual Body Full-Normal / Non-Terminating	G48H-2WNHD
2x24, 1.5 RU, Gray, Dual Body Full-Normal / Terminating	G48H-2WTHD
<b>2x24, 2 RU, Gray</b>	
2x24, 2 RU, Gray, Single Body Non-Normal / Non-Terminating	G48T-1WNHD
2x24, 2 RU, Gray, Dual Body Non-Normal / Terminating	G48T-1WTHD
2x24, 2 RU, Gray, Dual Body Full-Normal / Non-Terminating	G48T-2WNHD
2x24, 2 RU, Gray, Dual Body Full-Normal / Terminating	G48T-2WTHD
<b>2x26, 1 RU, Black</b>	
2x26, 1 RU, Black, Single Body Non-Normal / Non-Terminating	B52S-1WNHD
2x26, 1 RU, Black, Dual Body Non-Normal / Terminating	B52S-1WTHD
2x26, 1 RU, Black, Dual Body Full-Normal / Non-Terminating	B52S-2WNHD
2x26, 1 RU, Black, Dual Body Full-Normal / Terminating	B52S-2WTHD

DESCRIPTION	PRODUCT NUMBER
<b>2x26, 1.5 RU, Black</b>	
2x26, 1.5 RU, Black, Single Body Non-Normal / Non-Terminating	B52H-1WNHD
2x26, 1.5 RU, Black, Dual Body Non-Normal / Terminating	B52H-1WTHD
2x26, 1.5 RU, Black, Dual Body Full-Normal / Non-Terminating	B52H-2WNHD
2x26, 1.5 RU, Black, Dual Body Full-Normal / Terminating	B52H-2WTHD
<b>2x26, 2 RU, Black</b>	
2x26, 2 RU, Black, Single Body Non-Normal / Non-Terminating	B52T-1WNHD
2x26, 2 RU, Black, Dual Body Non-Normal / Terminating	B52T-1WTHD
2x26, 2 RU, Black, Dual Body Full-Normal / Non-Terminating	B52T-2WNHD
2x26, 2 RU, Black, Dual Body Full-Normal / Terminating	B52T-2WTHD
<b>2x26, 1 RU, Gray</b>	
2x26, 1 RU, Gray, Single Body Non-Normal / Non-Terminating	G52S-1WNHD
2x26, 1 RU, Gray, Dual Body Non-Normal / Terminating	G52S-1WTHD
2x26, 1 RU, Gray, Dual Body Full-Normal / Non-Terminating	G52S-2WNHD
2x26, 1 RU, Gray, Dual Body Full-Normal / Terminating	G52S-2WTHD
<b>2x26, 1.5 RU, Gray</b>	
2x26, 1.5 RU, Gray, Single Body Non-Normal / Non-Terminating	G52H-1WNHD
2x26, 1.5 RU, Gray, Dual Body Non-Normal / Terminating	G52H-1WTHD
2x26, 1.5 RU, Gray, Dual Body Full-Normal / Non-Terminating	G52H-2WNHD
2x26, 1.5 RU, Gray, Dual Body Full-Normal / Terminating	G52H-2WTHD
<b>2x26, 2 RU, Gray</b>	
2x26, 2 RU, Gray, Single Body Non-Normal / Non-Terminating	G52T-1WNHD
2x26, 2 RU, Gray, Dual Body Non-Normal / Terminating	G52T-1WTHD
2x26, 2 RU, Gray, Dual Body Full-Normal / Non-Terminating	G52T-2WNHD
2x26, 2 RU, Gray, Dual Body Full-Normal / Terminating	G52T-2WTHD
<b>2x28, 1 RU, Black</b>	
2x28, 1 RU, Black, Single Body Non-Normal / Non-Terminating	B56S-1WNHD
2x28, 1 RU, Black, Dual Body Non-Normal / Terminating	B56S-1WTHD
2x28, 1 RU, Black, Dual Body Full-Normal / Non-Terminating	B56S-2WNHD
2x28, 1 RU, Black, Dual Body Full-Normal / Terminating	B56S-2WTHD
<b>2x28, 1.5 RU, Black</b>	
2x28, 1.5 RU, Black, Single Body Non-Normal / Non-Terminating	B56H-1WNHD
2x28, 1.5 RU, Black, Dual Body Non-Normal / Terminating	B56H-1WTHD
2x28, 1.5 RU, Black, Dual Body Full-Normal / Non-Terminating	B56H-2WNHD
2x28, 1.5 RU, Black, Dual Body Full-Normal / Terminating	B56H-2WTHD
<b>2x28, 2 RU, Black</b>	
2x28, 2 RU, Black, Single Body Non-Normal / Non-Terminating	B56T-1WNHD
2x28, 2 RU, Black, Dual Body Non-Normal / Terminating	B56T-1WTHD
2x28, 2 RU, Black, Dual Body Full-Normal / Non-Terminating	B56T-2WNHD
2x28, 2 RU, Black, Dual Body Full-Normal / Terminating	B56T-2WTHD
<b>2x28, 1 RU, Gray</b>	
2x28, 1 RU, Gray, Single Body Non-Normal / Non-Terminating	G56S-1WNHD
2x28, 1 RU, Gray, Dual Body Non-Normal / Terminating	G56S-1WTHD
2x28, 1 RU, Gray, Dual Body Full-Normal / Non-Terminating	G56S-2WNHD
2x28, 1 RU, Gray, Dual Body Full-Normal / Terminating	G56S-2WTHD
<b>2x28, 1.5 RU, Gray</b>	
2x28, 1.5 RU, Gray, Single Body Non-Normal / Non-Terminating	G56H-1WNHD
2x28, 1.5 RU, Gray, Dual Body Non-Normal / Terminating	G56H-1WTHD
2x28, 1.5 RU, Gray, Dual Body Full-Normal / Non-Terminating	G56H-2WNHD
2x28, 1.5 RU, Gray, Dual Body Full-Normal / Terminating	G56H-2WTHD
<b>2x28, 2 RU, Gray</b>	
2x28, 2 RU, Gray, Single Body Non-Normal / Non-Terminating	G56T-1WNHD
2x28, 2 RU, Gray, Dual Body Non-Normal / Terminating	G56T-1WTHD
2x28, 2 RU, Gray, Dual Body Full-Normal / Non-Terminating	G56T-2WNHD
2x28, 2 RU, Gray, Dual Body Full-Normal / Terminating	G56T-2WTHD

### Full-Normal / Terminating

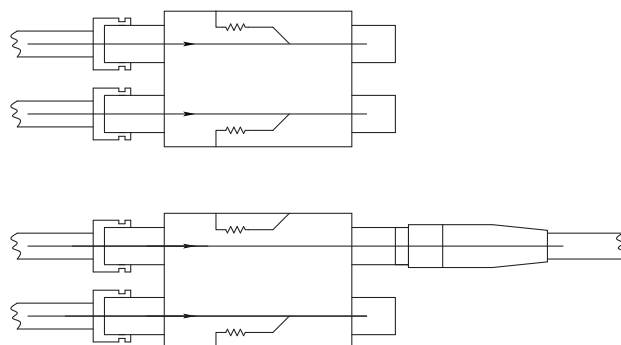
Features a dual-body video jack. Signal flows through jack in un-patched state. When a patchcord is inserted, the signal path follows the patchcord, and the opposite side of the jack is terminated with a 75 Ohm resistor.



2WTHD

### Non-Normal / Terminating

Features a dual-body video jack. When a patchcord is inserted, the signal path follows the patchcord. When patchcord is removed, circuit is terminated with a 75 Ohm resistor.

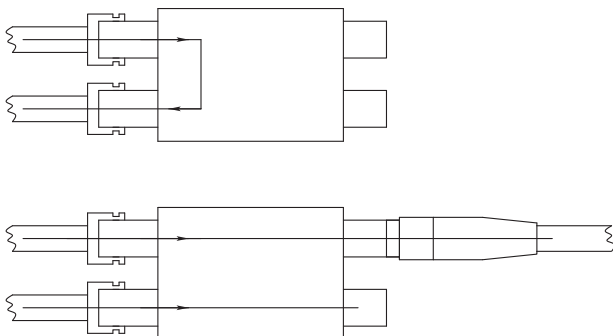


1WTHD

*Note: As of November 2011, the 1WTHD changed from two single-body connectors to one dual-body connector, except for on single-row configurations, which still use single-body jacks.*

### Full-Normal / Non-Terminating

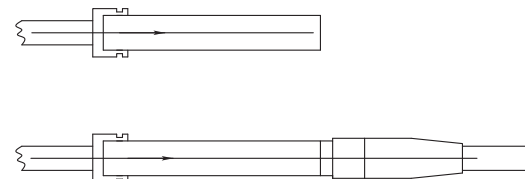
Features a dual-body video jack. Signal flows through jack in un-patched state. When a patchcord is inserted, the signal path follows the patchcord.



2WNHD

### Non-Normal / Non-Terminating

Features a dual-body video jack. When a patchcord is inserted, the signal path follows the patchcord.



1WNHD

For fast, easy ordering  
visit [bittree.com](http://bittree.com)



## WECO LOOPING PLUGS LP 75 00

- Color**  
 00= Black  
 02= Red  
 04= Yellow  
 05= Green  
 06= Blue  
 08= Gray



## WECO PATCH CORDS VPC 24 00 - 75

- Color**  
 00= Black  
 02= Red  
 04= Yellow  
 05= Green  
 06= Blue  
 07= Purple

- Length  
in Inches (cm)**  
 24 (61)  
 36 (92)  
 48 (122)  
 60 (153)  
 72 (184)

Our easy-to-use Ordering Codes let you order the exact patching system you need. As shown in the chart below, simply choose the option you want for each specification.

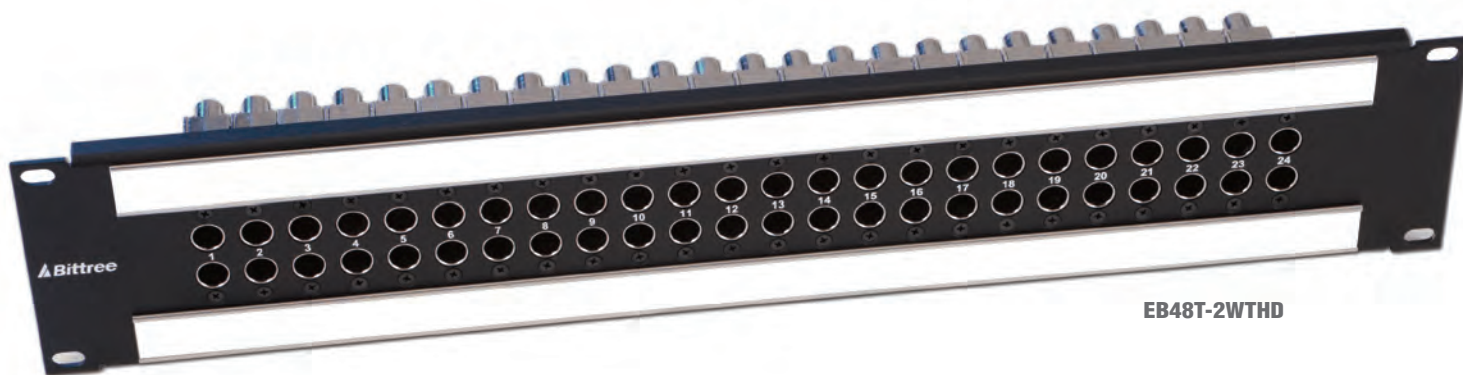
### HIGH-BANDWIDTH WECO ORDERING CODES

**B 48 T - 2 W N HD**

- Bandwidth**  
HD = High Definition (3GHz)
- Jack Termination**  
N = Non-Terminating  
T = Terminating
- Jack Standard**  
W = Weco
- Jack Type**  
2 = Normaling  
1 = Non-Normaling
- Panel Height**  
S = 1RU  
H = 1.5RU  
T = 2RU
- Quantity of Patch Ports**  
24 = 1x24 (1RU Only)  
26 = 1x26 (1RU Only)  
28 = 1x28 (1RU Only)  
48 = 2x24  
52 = 2x26  
56 = 2x28
- Color Choice**  
B = Black  
G = Gray



# E-SERIES VIDEO



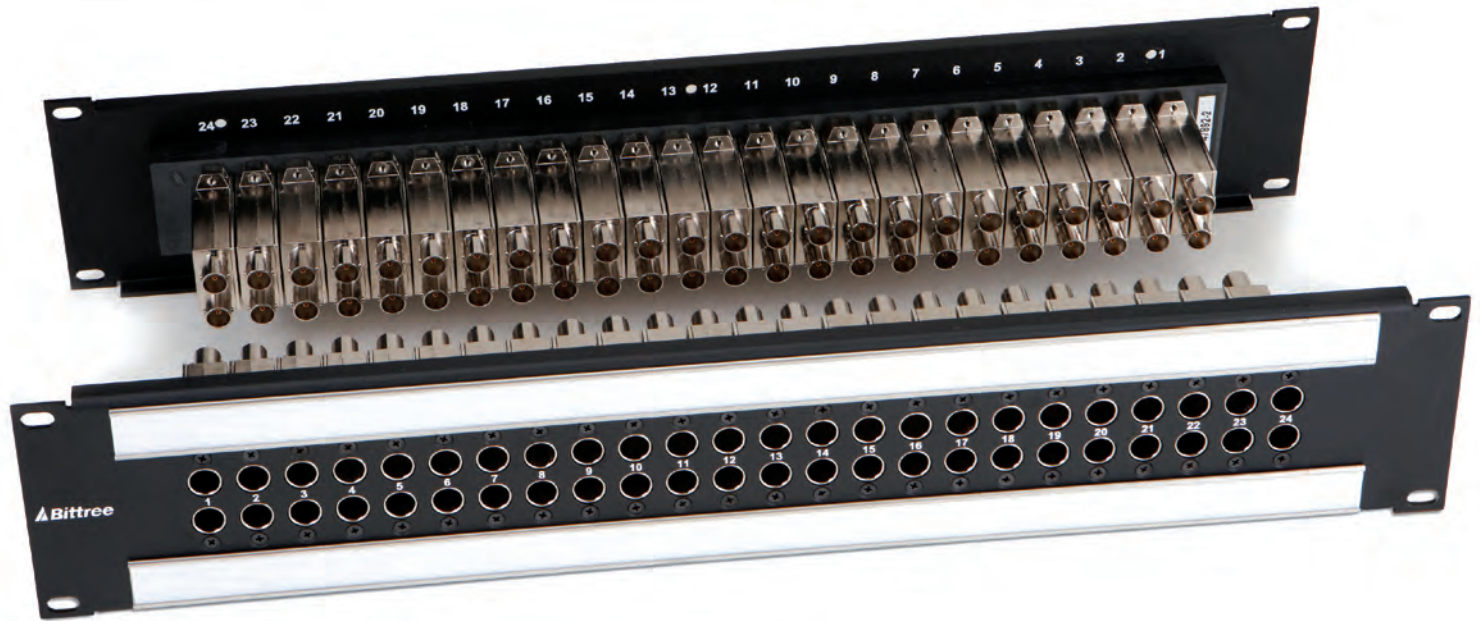
## Overview

Bittree's E-Series high-bandwidth video patchbays are ideal for SD/SDI, HD/SDI, and other 3 Gb/s applications.

Featuring 1-24 silk-screened numbering on both the front and back panels for easy circuit identification, the E-Series comes in a spacious 2 RU, 2 x 24 WECO configuration.

Made from heavy-gauge aluminum, the E-Series features I-beam style construction for extra strength, and the front-loaded jacks conform to SMPTE 292M and SMPTE 424M standards.

The E-Series is designed for exceptional performance in high-bandwidth applications such as HDTV, SDI, AES and high-resolution computer graphics, as well as in conventional analog applications such as monitor routing, primary routing, re-routing, router backup and video distribution.



- Spacious WECO format in 2 RU, 2x24 configuration
- Front and back panels feature 1-24 silk-screened numbering for easy circuit identification
- HD/SDI, SD/SDI, 3Gb/s and 3-D applications
- Front-loaded jacks conform to SMPTE 292M and SMPTE 424M standards

Our E-Series of WECO Video high-bandwidth patchbays are designed to meet all your patching needs, from high bit-rate digital signals to base-band analog. Bittree WECO Video E-Series patchbays are ideal for high-bandwidth applications such as HDTV, SDI, AES and high-resolution computer graphics, as well as for conventional analog applications such as monitor routing, primary routing, re-routing, router backup and video distribution.

### E-Series High-Bandwidth WECO Video Patchbay Features

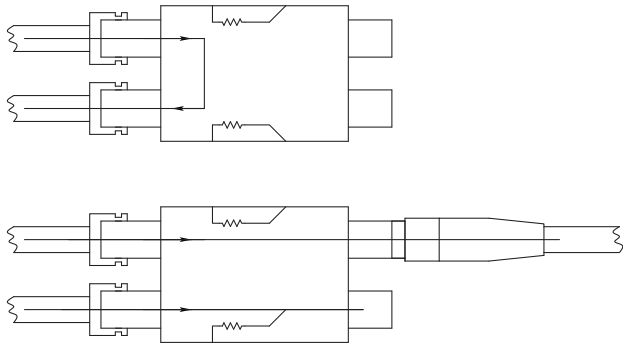
- Spacious WECO format in 2 RU, 2x24 configuration
- Front and back panels feature 1-24 silk-screened numbering for easy circuit identification
- High-bandwidth performance for SD/SDI, HD/SDI, and 3 Gb/s applications
- Jacks conform to SMPTE 292M and SMPTE 424M
- True 75ohm impedance with low return loss
- Heavy-gauge aluminum panel features I-beam style construction for extra strength
- Durable, scratch-resistant powder-coat finish
- Extra wide designation strips

### E-Series High-Bandwidth WECO Video Patchbay Options

- Jacks may be ordered in four different configurations:
  - Dual body self-normaling, terminating (E-2WTHD)
  - Dual body self-normaling, non-terminating (E-2WNHD)
  - Dual body non-normaling, terminating (E-1WTHD)
  - Dual body non-normaling, non-terminating (E-1WNHD)

## Full-Normal / Terminating

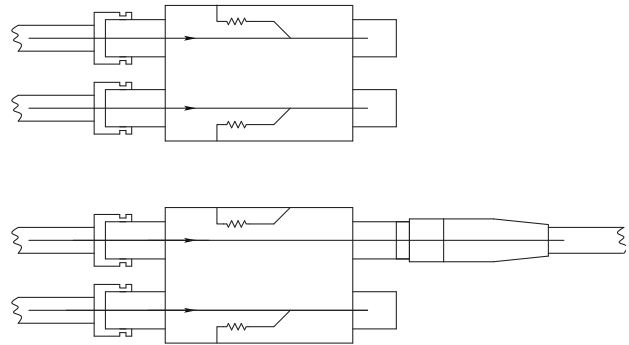
Features a dual-body video jack. Signal flows through jack in un-patched state. When a patchcord is inserted, the signal path follows the patchcord, and the opposite side of the jack is terminated with a 75 Ohm resistor.



E-2WTHD

## Non-Normal / Terminating

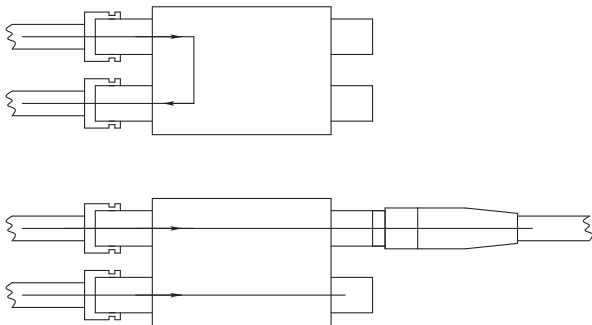
Features a dual-body video jack. When a patchcord is inserted, the signal path follows the patchcord. When patchcord is removed, circuit is terminated with a 75 Ohm resistor.



E-1WTHD

## Full-Normal / Non-Terminating

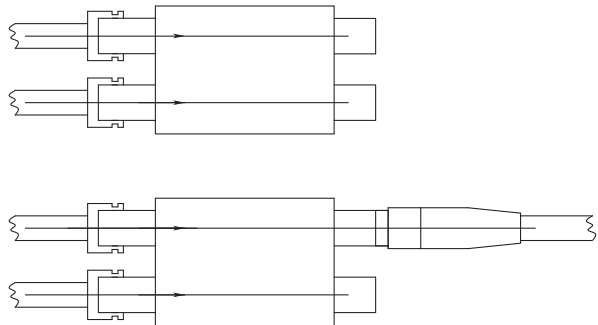
Features a dual-body video jack. Signal flows through jack in un-patched state. When a patchcord is inserted, the signal path follows the patchcord.



E-2WNHD

## Non-Normal / Non-Terminating

Features a dual-body video jack. When a patchcord is inserted, the signal path follows the patchcord.



E-1WNHD

DESCRIPTION	PRODUCT NUMBER
2x24, 2 RU, Black Dual Body, Non-Normal / Non-Terminating	EB48T-1WNHD
2x24, 2 RU, Black Dual Body, Non-Normal / Terminating	EB48T-1WTHD
2x24, 2 RU, Black Dual Body, Normal / Non-Terminating	EB48T-2WNHD
2x24, 2 RU, Black Dual Body, Normal / Terminating	EB48T-1WTHD

For fast, easy ordering visit [bittree.com](http://bittree.com)



**WECO LOOPING PLUGS**

LP 75 00

- Color**
- 00= Black
  - 02= Red
  - 04= Yellow
  - 05= Green
  - 06= Blue
  - 08= Gray



**WECO PATCH CORDS**

VPC 24 00 – 75

- Color**
- 00= Black
  - 02= Red
  - 04= Yellow
  - 05= Green
  - 06= Blue
  - 07= Purple

- Length in Inches (cm)**
- 24 (61)
  - 36 (92)
  - 48 (122)
  - 60 (153)
  - 72 (184)





# COMPONENT VIDEO



BRGB16T-2WN

## Overview

Bittree offers a full line of reliable component video patchbays, ideal for SD/SDI, HD/SDI, and other 3 Gb/s applications.

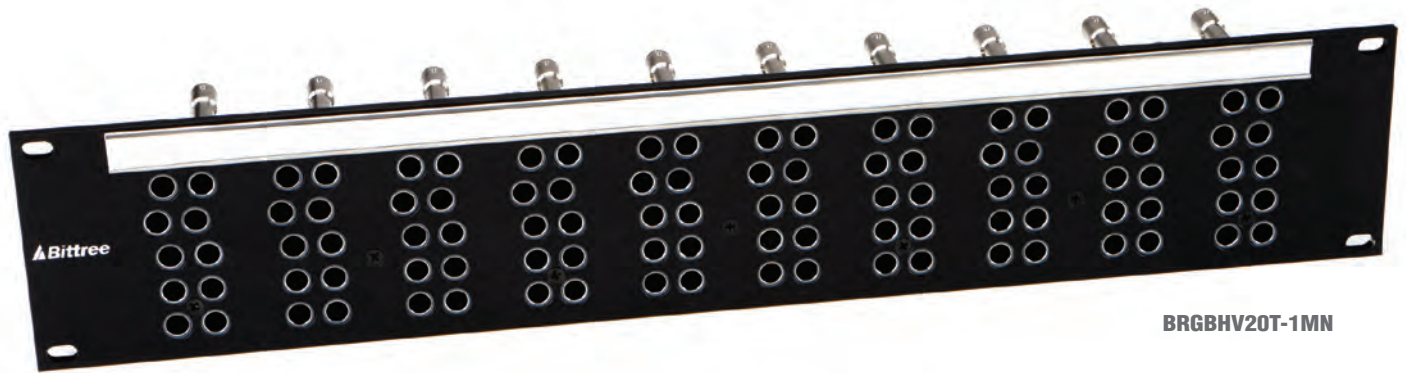
Made from 3/16" solid aluminum and featuring the industry's finest fit-and-finish, our component video patchbays are available in both Mini-WECO and WECO formats.

The Mini-WECO patchbays feature higher-density 1 x 6 up to 2 x 10 jack configurations, while the more spacious WECO format features 1 x 5 up to 2 x 10 jack configurations.

Both Mini-WECO and WECO are available in 1 or 2 RU sizes, and both come with an offset "chevron" design to ensure correct patchcord insertion.

Bittree component video patchbays are available in RGB and RGBHV models, and corresponding three-wire and five-wire patchcords are available. All component video jacks are SMPTE 292M and SMPTE 424M compliant.

**Note on Mini-WECO vs. WECO formats:** Most video patching systems in the U.S. use the WECO standard, developed by the Western Electric Company in the middle of the 20th century. WECO patchbays are usually considered easier to work with due to their more spacious jack configuration (1 x 5 configuration), while Mini-WECO patchbays are ideal for higher-density patching (1 x 6 configuration).



- **RGB and RGBHV Component models available**
- **1 or 2 RU sizes, with offset chevron design to ensure correct patchcord insertion**
- **HD/SDI, SD/SDI, 3Gb/s and 3-D applications**
- **SMPTE 292M and SMPTE 424M compliant**
- **Corresponding three-wire and five-wire patchcords available**

Our wide range of Mini-WECO Video Component patchbays are designed to meet all of your patching needs, from high bit-rate digital signals to base-band analog. Bittree Mini-WECO video patchbays are ideal for high-bandwidth applications such as HDTV, SDI, AES and high-resolution computer graphics, as well as in conventional analog applications such as monitor routing, primary routing, re-routing, router backup and video distribution.

**Component Mini-WECO Video Patchbay Features**

- High-bandwidth performance for SD/SDI, HD/SDI, and 3 Gb/s applications
- Jacks conform to SMPTE 292M and SMPTE 424M
- True 75ohm impedance with low return loss
- The center RGB circuit is offset to ensure correct patchcord insertion
- Panels made from 3/16” solid aluminum
- Staggered BNC rear interface
- Durable, scratch-resistant powder-coat finish
- Jacks are isolated from the panel
- Extra wide designation strips
- 3-circuit and 5-circuit patchcords available for RGB and RGBHV

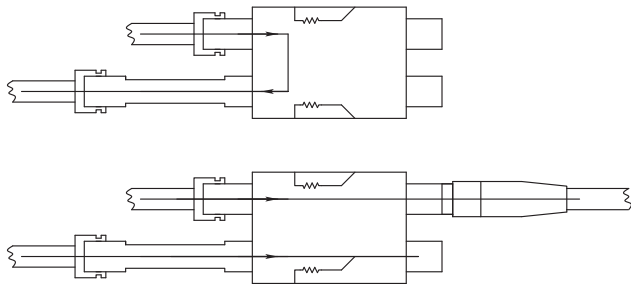
**Component Mini-WECO Video Patchbay Options**

- RGB and RGBHV Component models available
- Circuit counts range from 1 x 6 up through 2 x 10
- Available in 1 or 2 rack units (RU)
- For higher density, some component video patchbays use a vertical jack configuration
- Black or gray front panel
- Jacks may be ordered in four different configurations:
  - Dual body self-normaling, terminating (2MWTHD)
  - Dual body self-normaling, non-terminating (2MWNHD)
  - Single body non-normaling, terminating (1MWTHD)
  - Single body non-normaling, non-terminating (1MWNHD)

DESCRIPTION	PRODUCT NUMBER
<b>RGB, 1 x 10, 1 RU, Black</b>	
RGB, 1 x 10, 1 RU, Black, Single Body Non-Normal / Non-Terminating	BRGB10S-1MN
RGB, 1 x 10, 1 RU, Black, Single Body Non-Normal / Terminating	BRGB10S-1MT
<b>RGB, 1 x 10, 1 RU, Gray</b>	
RGB, 1 x 10, 1 RU, Gray, Single Body Non-Normal / Non-Terminating	GRGB10S-1MN
RGB, 1 x 10, 1 RU, Gray, Single Body Non-Normal / Terminating	GRGB10S-1MT
<b>RGB, 2 x 10, 2 RU, Black</b>	
RGB, 2 x 10, 2 RU, Black, Single Body Non-Normal / Non-Terminating	BRGB20T-1MN
RGB, 2 x 10, 2 RU, Black, Single Body Non-Normal / Terminating	BRGB20T-1MT
RGB, 2 x 10, 2 RU, Black, Dual Body Full-Normal / Non-Terminating	BRGB20T-2MN
RGB, 2 x 10, 2 RU, Black, Dual Body Full-Normal / Terminating	BRGB20T-2MT
<b>RGB, 2 x 10, 2 RU, Gray</b>	
RGB, 2 x 10, 2 RU, Gray, Single Body Non-Normal / Non-Terminating	GRGB20T-1MN
RGB, 2 x 10, 2 RU, Gray, Single Body Non-Normal / Terminating	GRGB20T-1MT
RGB, 2 x 10, 2 RU, Gray, Dual Body Full-Normal / Non-Terminating	GRGB20T-2MN
RGB, 2 x 10, 2 RU, Gray, Dual Body Full-Normal / Terminating	GRGB20T-2MT
<b>RGBHV, 1 x 6, 1 RU, Black</b>	
RGBHV, 1 x 6, 1 RU, Black, Single Body Non-Normal / Non-Terminating	BRGBHV6S-1MN
RGBHV, 1 x 6, 1 RU, Black, Single Body Non-Normal / Terminating	BRGBHV6S-1MT
<b>RGBHV, 1 x 6, 1 RU, Gray</b>	
RGBHV, 1 x 6, 1 RU, Gray, Single Body Non-Normal / Non-Terminating	GRGBHV6S-1MN
RGBHV, 1 x 6, 1 RU, Gray, Single Body Non-Normal / Terminating	GRGBHV6S-1MT
<b>RGBHV, 2 x 6, 2 RU, Black</b>	
RGBHV, 2 x 6, 2 RU, Black, Single Body Non-Normal / Non-Terminating	BRGBHV12T-1MN
RGBHV, 2 x 6, 2 RU, Black, Single Body Non-Normal / Terminating	BRGBHV12T-1MT
RGBHV, 2 x 6, 2 RU, Black, Dual Body Full-Normal / Non-Terminating	BRGBHV12T-2MN
RGBHV, 2 x 6, 2 RU, Black, Dual Body Full-Normal / Terminating	BRGBHV12T-2MT
<b>RGBHV, 2 x 6, 2 RU, Gray</b>	
RGBHV, 2 x 6, 2 RU, Gray, Single Body Non-Normal / Non-Terminating	GRGBHV12T-1MN
RGBHV, 2 x 6, 2 RU, Gray, Single Body Non-Normal / Terminating	GRGBHV12T-1MT
RGBHV, 2 x 6, 2 RU, Gray, Dual Body Full-Normal / Non-Terminating	GRGBHV12T-2MN
RGBHV, 2 x 6, 2 RU, Gray, Dual Body Full-Normal / Terminating	GRGBHV12T-2MT
<b>RGBHV, 2 x 10, 2 RU, Black</b>	
RGBHV, 2 x 10, 2 RU, Black, Single Body Non-Normal / Non-Terminating	BRGBHV20T-1MN
RGBHV, 2 x 10, 2 RU, Black, Single Body Non-Normal / Terminating	BRGBHV20T-1MT
RGBHV, 2 x 10, 2 RU, Black, Dual Body Full-Normal / Non-Terminating	BRGBHV20T-2MN
RGBHV, 2 x 10, 2 RU, Black, Dual Body Full-Normal / Terminating	BRGBHV20T-2MT
<b>RGBHV, 2 x 10, 2 RU, Gray</b>	
RGBHV, 2 x 10, 2 RU, Gray, Single Body Non-Normal / Non-Terminating	GRGBHV20T-1MN
RGBHV, 2 x 10, 2 RU, Gray, Single Body Non-Normal / Terminating	GRGBHV20T-1MT
RGBHV, 2 x 10, 2 RU, Gray, Dual Body Full-Normal / Non-Terminating	GRGBHV20T-2MN
RGBHV, 2 x 10, 2 RU, Gray, Dual Body Full-Normal / Terminating	GRGBHV20T-2MT

**Full-Normal / Terminating**

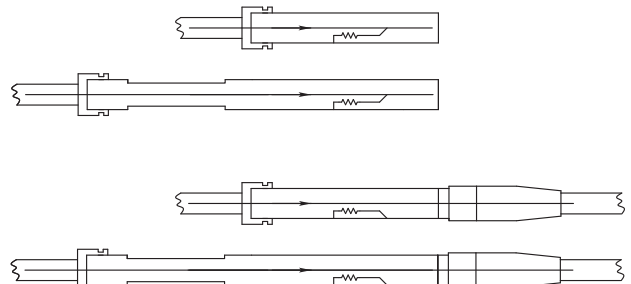
Features a dual-body video jack. Signal flows through jack in un-patched state. When a patchcord is inserted, the signal path follows the patchcord, and the opposite side of the jack is terminated with a 75 Ohm resistor.



2Mwthd

**Non-Normal / Terminating**

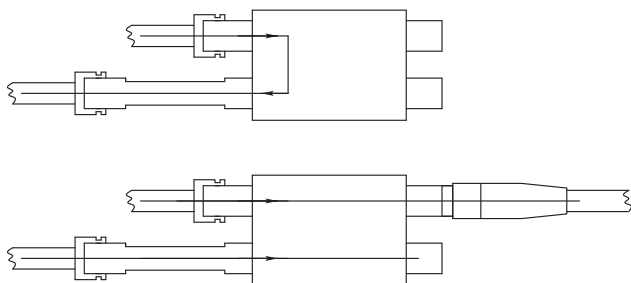
Features a dual-body video jack. When a patchcord is inserted, the signal path follows the patchcord. When patchcord is removed, circuit is terminated with a 75 Ohm resistor.



1Mwthd

**Full-Normal / Non-Terminating**

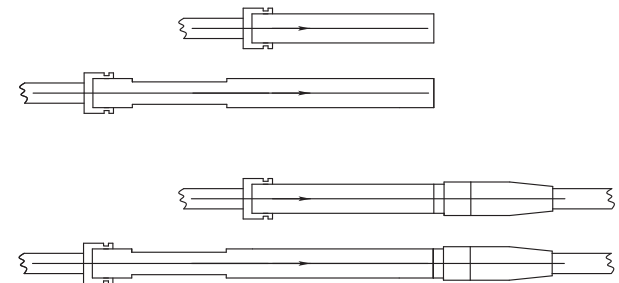
Features a dual-body video jack. Signal flows through jack in un-patched state. When a patchcord is inserted, the signal path follows the patchcord.



2Mwnhd

**Non-Normal / Non-Terminating**

Features a dual-body video jack. When a patchcord is inserted, the signal path follows the patchcord.



1Mwnhd



For fast, easy ordering visit [bittree.com](http://bittree.com)

**MINI-WECO COMPONENT PATCH CORDS**

**CPCM 24 00 - 75**

- Color**  
00= Black
- Length in Inches (cm)**  
24 (61)  
36 (92)  
48 (122)  
60 (153)  
72 (184)



Our easy-to-use Ordering Codes let you order the exact patching system you need. As shown in the chart below, simply choose the option you want for each specification.

**COMPONENT MINI-WECO ORDERING CODES**

**B RGB 20 T - 2 M N**

- Jack Termination**  
N = Non-Terminating  
T = Terminating
- Jack Standard**  
M = Mini-Weco
- Jack Type**  
2 = Normaling  
1 = Non-Normaling
- Panel Height**  
S = 1RU  
T = 2RU
- Number of Circuits**  
6 = 1x6 RGBHV (1RU Only)  
10 = 1x10 RGB (1RU Only)  
12 = 2x6 RGBHV  
20 = 2x10 RGB, RGBHV
- Type of Panel**  
RGB  
RGBHV
- Color Choice**  
B = Black  
G = Gray



- **RGB and RGBHV Component models available**
- **1 or 2 RU sizes, with offset chevron design to ensure correct patchcord insertion**
- **HD/SDI, SD/SDI, 3Gb/s and 3-D applications**
- **SMPTE 292M and SMPTE 424M compliant**
- **Corresponding three-wire and five-wire patchcords available**

Our wide range of WECO Video Component patchbays are designed to meet all of your patching needs, from high bit-rate digital signals to base-band analog. Bittree WECO video patchbays are ideal for high-bandwidth applications such as HDTV, SDI, AES and high-resolution computer graphics, as well as in conventional analog applications such as monitor routing, primary routing, re-routing, router backup and video distribution.

**Component WECO Video Patchbay Features**

- High-bandwidth performance for SD/SDI, HD/SDI, and 3 Gb/s applications
- Jacks conform to SMPTE 292M and SMPTE 424M
- True 75ohm impedance with low return loss
- The center RGB circuit is offset to ensure correct patchcord insertion
- Panels made from 3/16” solid aluminum
- BNC rear interface
- Durable, scratch-resistant powder-coat finish
- Jacks are isolated from the panel
- Extra wide designation strips
- 3-circuit and 5-circuit patchcords available for RGB and RGBHV

**Component WECO Video Patchbay Options**

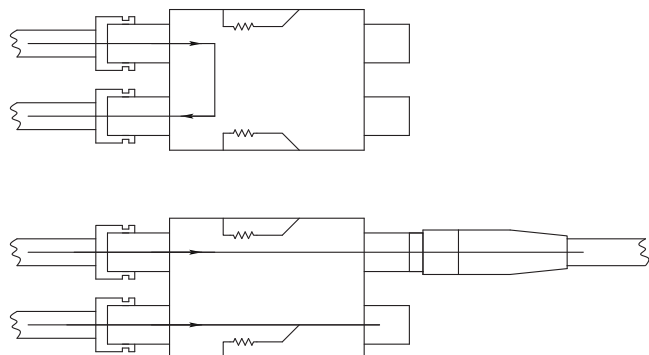
- RGB and RGBHV Component models available
- Circuit counts range from 1 x 5 up through 2 x 10
- Available in 1 or 2 rack units (RU)
- Black or gray front panel
- Jacks may be ordered in four different configurations:
  - Dual body self-normaling, terminating (2WTHD)
  - Dual body self-normaling, non-terminating (2WNHD)
  - Single body non-normaling, terminating (1WTHD)
  - Single body non-normaling, non-terminating (1WNHD)

HB VIDEO  
E-SERIES VIDEO  
COMP. VIDEO  
AES AUDIO  
AUDIO TT  
AUDIO 1/4"  
RS-422 ACTIVE  
RS-422 PROG.  
INTEGRATED  
ACCESSORIES

DESCRIPTION	PRODUCT NUMBER
<b>RGB, 1x8, 1 RU, Black</b>	
RGB, 1x8, 1 RU, Black, Single Body Non-Normal / Non-Terminating	BRGB8S-1WN
RGB, 1x8, 1 RU, Black, Single Body Non-Normal / Terminating	BRGB8S-1WT
<b>RGB, 1x8, 1 RU, Gray</b>	
RGB, 1x8, 1 RU, Gray, Single Body Non-Normal / Non-Terminating	GRGB8S-1WN
RGB, 1x8, 1 RU, Gray, Single Body Non-Normal / Terminating	GRGB8S-1WT
<b>RGB, 2x8, 2 RU, Black</b>	
RGB, 2x8, 2 RU, Black, Single Body Non-Normal / Non-Terminating	BRGB16T-1WN
RGB, 2x8, 2 RU, Black, Single Body Non-Normal / Terminating	BRGB16T-1WT
RGB, 2x8, 2 RU, Black, Dual Body Full-Normal / Non-Terminating	BRGB16T-2WN
RGB, 2x8, 2 RU, Black, Dual Body Full-Normal / Terminating	BRGB16T-2WT
<b>RGB, 2x8, 2 RU, Gray</b>	
RGB, 2x8, 2 RU, Gray, Single Body Non-Normal / Non-Terminating	GRGB16T-1WN
RGB, 2x8, 2 RU, Gray, Single Body Non-Normal / Terminating	GRGB16T-1WT
RGB, 2x8, 2 RU, Gray, Dual Body Full-Normal / Non-Terminating	GRGB16T-2WN
RGB, 2x8, 2 RU, Gray, Dual Body Full-Normal / Terminating	GRGB16T-2WT
<b>RGB, 2x10, 2 RU, Black</b>	
RGB, 2x10, 2 RU, Black, Single Body Non-Normal / Non-Terminating	BRGB20T-1WN
RGB, 2x10, 2 RU, Black, Single Body Non-Normal / Terminating	BRGB20T-1WT
RGB, 2x10, 2 RU, Black, Dual Body Full-Normal / Non-Terminating	BRGB20T-2WN
RGB, 2x10, 2 RU, Black, Dual Body Full-Normal / Terminating	BRGB20T-2WT
<b>RGB, 2x10, 2 RU, Gray</b>	
RGB, 2x10, 2 RU, Gray, Single Body Non-Normal / Non-Terminating	GRGB20T-1WN
RGB, 2x10, 2 RU, Gray, Single Body Non-Normal / Terminating	GRGB20T-1WT
RGB, 2x10, 2 RU, Gray, Dual Body Full-Normal / Non-Terminating	GRGB20T-2WN
RGB, 2x10, 2 RU, Gray, Dual Body Full-Normal / Terminating	GRGB20T-2WT
<b>RGBHV, 1x5, 1 RU, Black</b>	
RGBHV, 1x5, 1 RU, Black, Single Body Non-Normal / Non-Terminating	BRGBHV5S-1WN
RGBHV, 1x5, 1 RU, Black, Single Body Non-Normal / Terminating	BRGBHV5S-1WT
<b>RGBHV, 1x5, 1 RU, Gray</b>	
RGBHV, 1x5, 1 RU, Gray, Single Body Non-Normal / Non-Terminating	GRGBHV5S-1WN
RGBHV, 1x5, 1 RU, Gray, Single Body Non-Normal / Terminating	GRGBHV5S-1WT
<b>RGBHV, 2x5, 2 RU, Black</b>	
RGBHV, 2x5, 2 RU, Black, Single Body Non-Normal / Non-Terminating	BRGBHV10T-1WN
RGBHV, 2x5, 2 RU, Black, Single Body Non-Normal / Terminating	BRGBHV10T-1WT
RGBHV, 2x5, 2 RU, Black, Dual Body Full-Normal / Non-Terminating	BRGBHV10T-2WN
RGBHV, 2x5, 2 RU, Black, Dual Body Full-Normal / Terminating	BRGBHV10T-2WT
<b>RGBHV, 2x5, 2 RU, Gray</b>	
RGBHV, 2x5, 2 RU, Gray, Single Body Non-Normal / Non-Terminating	GRGBHV10T-1WN
RGBHV, 2x5, 2 RU, Gray, Single Body Non-Normal / Terminating	GRGBHV10T-1WT
RGBHV, 2x5, 2 RU, Gray, Dual Body Full-Normal / Non-Terminating	GRGBHV10T-2WN
RGBHV, 2x5, 2 RU, Gray, Dual Body Full-Normal / Terminating	GRGBHV10T-2WT

**Full-Normal / Terminating**

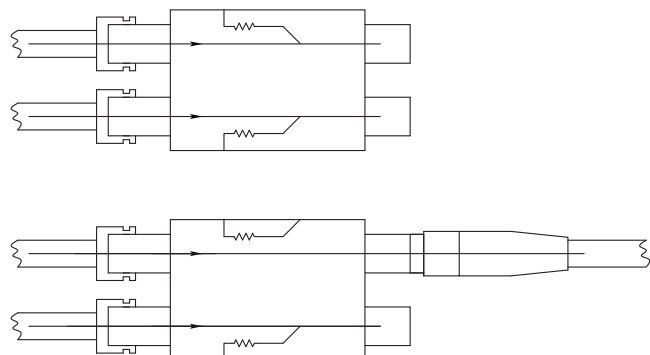
Features a dual-body video jack. Signal flows through jack in un-patched state. When a patchcord is inserted, the signal path follows the patchcord, and the opposite side of the jack is terminated with a 75 Ohm resistor.



2WTHD

**Non-Normal / Terminating**

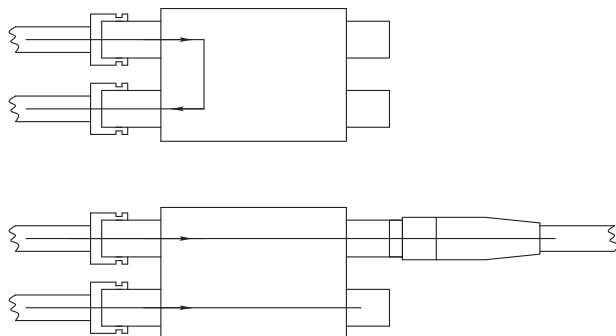
Features a dual-body video jack. When a patchcord is inserted, the signal path follows the patchcord. When patchcord is removed, circuit is terminated with a 75 Ohm resistor.



1WTHD

**Full-Normal / Non-Terminating**

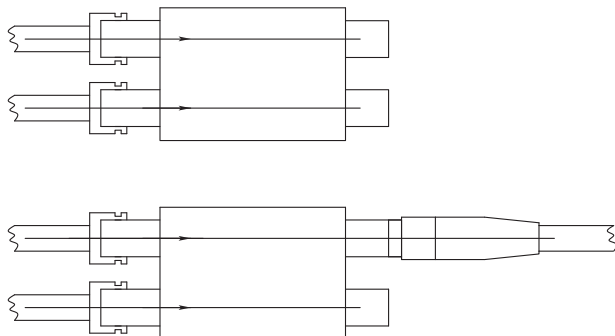
Signal flows through jack in un-patched state. When a patchcord is inserted, the signal path follows the patchcord.



2WNHD

**Non-Normal / Non-Terminating**

Features a dual-body video jack. When a patchcord is inserted, the signal path follows the patchcord.



1WNHD

For fast, easy ordering visit [bittree.com](http://bittree.com)



**WECO COMPONENT PATCH CORDS**

**CPC 24 00 - 75**

- Color**  
00= Black
- Length in Inches (cm)**  
24 (61)  
36 (92)  
48 (122)  
60 (153)  
72 (184)



Our easy-to-use Ordering Codes let you order the exact patching system you need. As shown in the chart below, simply choose the option you want for each specification.

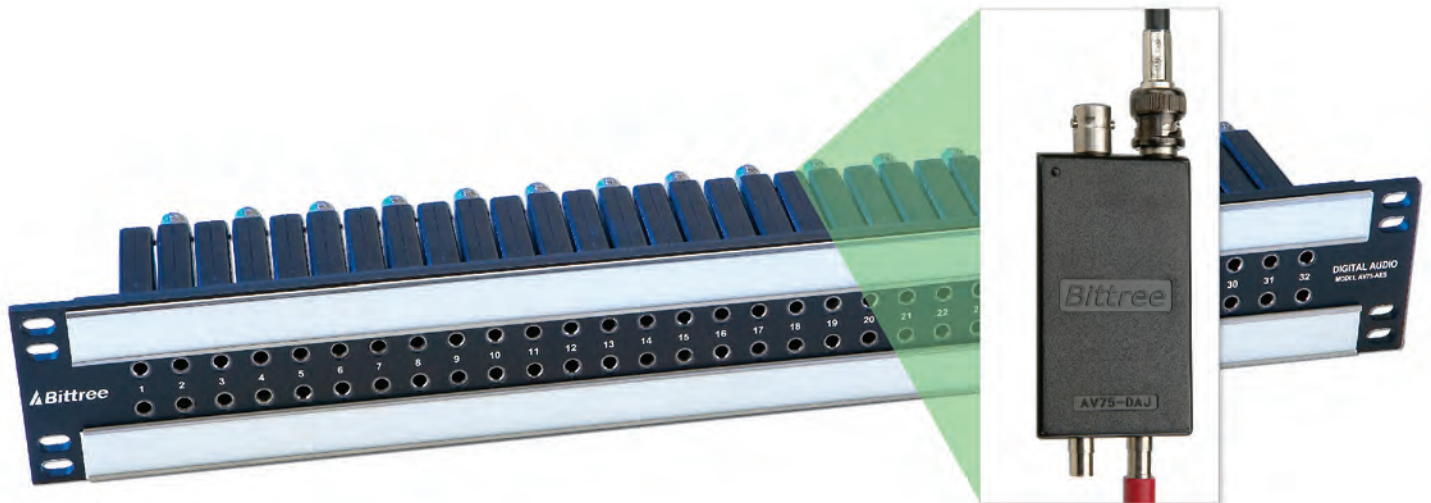
**COMPONENT WECO ORDERING CODES**

**B RGB 16 T - 2 W N**

- Jack Termination**  
N = Non-Terminating  
T = Terminating
- Jack Standard**  
W = Weco
- Jack Type**  
2 = Normaling  
1 = Non-Normaling
- Panel Height**  
S = 1RU  
T = 2RU
- Number of Circuits**  
5 = 1x5 RGBHV (1RU Only)  
8 = 1x8 RGB (1RU Only)  
10 = 2x5 RGBHV  
16 = 2x8 RGB  
20 = 2x10 RGB
- Type of Panel**  
RGB  
RGBHV
- Color Choice**  
B = Black  
G = Gray



# AES AUDIO



## Overview

Bittree's new 2 x 32 AES 75-ohm Audio Patchbay was developed specifically for today's digital audio environment, and serves as the ideal foundation for lower-cost, more reliable and easier-to-install digital audio patching systems.

The key lies in the patchbay's hybrid bantam/BNC jack, featuring a patent-pending 75-ohm bantam jack with a BNC rear interface. The new jack – coupled with Bittree's new 75-ohm patchcord – helps you easily and reliably connect equipment using existing or new 75-ohm coaxial infrastructures.

The result is a durable patchbay designed specifically for the growing number of facilities using 75-ohm unbalanced digital audio for routers and new-generation VTRs.

Aside from the ease and reliability of the AES 75-ohm Audio Patchbay, it can also provide exceptional cost savings. Up until now, many installations have been using higher-end video patchbays for their 75-ohm digital audio, simply for the convenience of the BNC rear connectors. But the new AES 75-ohm hybrid bantam/BNC audio patchbay brings you the same convenience and the same performance – all at a lower price point.

In addition to the lower outright cost, the new 75-ohm audio patchbay also lets you reclaim your existing video patchbays from audio duty, saving you money on future upgrades and installations. Other savings come from using the new lower-cost 75-ohm bantam patchcords instead of mini-WECO patchcords when using video patchbays, or from eliminating the need for costly adapters and baluns when using traditional audio patchbays.



**Reliable Bantam Audio on the Front and Convenient BNC Connectors on the Back**

As can be expected, installation and maintenance is also faster and easier with the new patchbay, thanks to its easily accessible BNC connectors. Plus, unlike the mini-WECO video patchbays sometimes used for 75-ohm audio, the backplane is not staggered, so every jack is easily accessed without tools and in tight quarters. In addition, the patchbay's front-loading modular design makes it easy to replace and maintain jacks whenever needed.

The 2 x 32 AES Unbalanced Audio Patchbay is as durable as it is efficient. Each jack features rugged box-frame construction made from nickel-plated cold-rolled steel, and gold-alloy cross bar switching contacts ensure reliable connections. The patchbay's innovative design and precise manufacturing gives you the convenience and performance of a video jack with the reliability and lower cost of an audio jack.

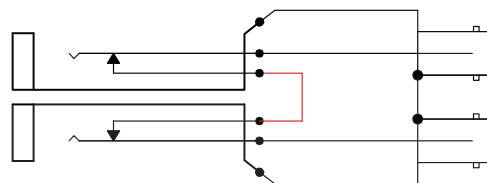
Available in 1, 1.5 and 2 RU, the AES 75-ohm Audio Patchbay is designed for broadcast, production and post-production. In addition, its light weight and available compact 1 RU size makes it ideal for mobile production.

### Patchbay Features

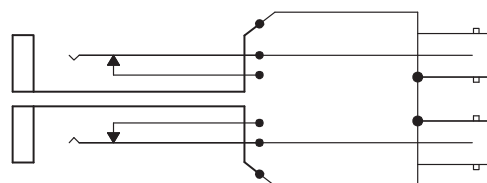
- 2 x 32 jack configuration, available in 1, 1.5 or 2 RU
- Jacks conform to AES 75-ohm unbalanced audio standards
- Patent-pending hybrid Bantam (TT) audio jacks with BNC connectors
- Uses lower-cost, ultra-reliable, unbalanced 75-ohm coaxial bantam patchcords
- Jacks are isolated from the panel
- Circuit ID numbers (1-32, left to right) clearly indicated on patchbay front
- Extra-wide designation strips
- Black or gray front panel
- Normal I/O paired ports

**Built to Last**

- Jacks rated to 30,000 minimum insertion cycles
- Rugged nickel-plated, cold-rolled steel, box-frame jack construction
- Copper-nickel-silver alloy leaf springs with gold-alloy cross bar switching contacts and nickel-plated sleeve bushings
- Panels made from 3/16" solid aluminum with durable powder-coat finish



**NORMALED**



**NON NORMALED**

**Jack Specifications**

Rated Bandwidth:	100 MHz
Characteristic Impedance:	75-ohms
Return Loss:	< - .35dB through the normal < - .20 dB patched with 2-foot 75-ohm patchcord
Insertion Loss:	< - .25 dB through the normal < - .40 dB patched with 2-foot 75-ohm patchcord

**Rear Interface Connections**

Signal: High-performance 75-ohm BNC with un-staggered backplane

**Front Interface Connections**

Signal: Bantam (TT) jacks  
 Life Cycle: > 30,000 insertion cycles  
 Patchcord: Coaxial Bantam (TT) patchcords



**Bittree's Low-Cost, Ultra-Reliable Coaxial Bantam Patchcords**

DESCRIPTION	PRODUCT NUMBER
<b>AES 75-ohm Audio Patchbays:</b>	
2 x 32, 1 RU, Full-Normal	B64S-AV75
2 x 32, 1.5 RU, Full-Normal	B64H-AV75
2 x 32, 2 RU, Full-Normal	B64T-AV75
2 x 32, 1 RU, Non-Normal	B64S-AV75N
2 x 32, 1.5 RU, Non-Normal	B64H-AV75N
2 x 32, 2 RU, Non-Normal	B64T-AV75N
<b>Unbalanced 75-ohm Coaxial Bantam Patchcords:</b>	
12" red	AVPC1202
24" red	AVPC2402
36" red	AVPC3602
48" red	AVPC4802
60" red	AVPC6002
72" red	AVPC7202

# AUDIO TT



## Overview

Bittree offers two formats of audio patchbays: Bantam (TT), described below, and Long Frame (1/4"), described on page 59. Bantam patchbays are ideal for higher-density patching systems, due to their 2 x 48 jack configuration.

### CHOOSING THE RIGHT AUDIO BANTAM PATCHBAY

#### **969-A Series, Programmable, 2 x 48**

Our 969-A Series of Programmable patchbays allows you to change normalizing and grounding for individual circuits simply by changing the shunt arrangement under the designation strips. Features convenient 1-48 left-to-right numbering on the patchbay front for easy identification of circuits. Available in 1.5 and 2 RU enclosed chassis.

#### **969-S Series, Programmable, 2 x 48**

Includes the same features as the 969-A Series above, but also allows you to program switched grounds – in addition to bussed, isolated and looped grounds as with the original 969 and 969-A series.

#### **968 Series, Internally Programmable, 2 x 48**

Comes with the same programming capability as the 969 Series, but the programming is done internally so it can fit into a 1 RU enclosed chassis.

#### **968-S Series, Internally Programmable, 2 x 48**

Includes the same features as 968 Series above, but also allows you to program switched grounds – in addition to bussed, isolated and looped grounds as with the original 968 series.

#### **961 Series, Classic, 2 x 48**

Our original Bantam audio patchbay, featuring our most extensive selection of options available, including normals out, grounding, and other internal hard-wiring options, rear panel configurations, stereo/mono spacing, panel color, rack-unit height, and harness configurations. Non-programmable.





- **Programmable Audio Bantam (TT) Patchbay**
- **Normals and Grounds can be easily reprogrammed by the end-user**
- **High-density 2 x 48 jack configuration; 1.5 or 2 RU size**
- **Rear interface options include E-3, E-90, ID (punchdown) and D25**
- **1-48 numbering on patchbay front for easy circuit identification**

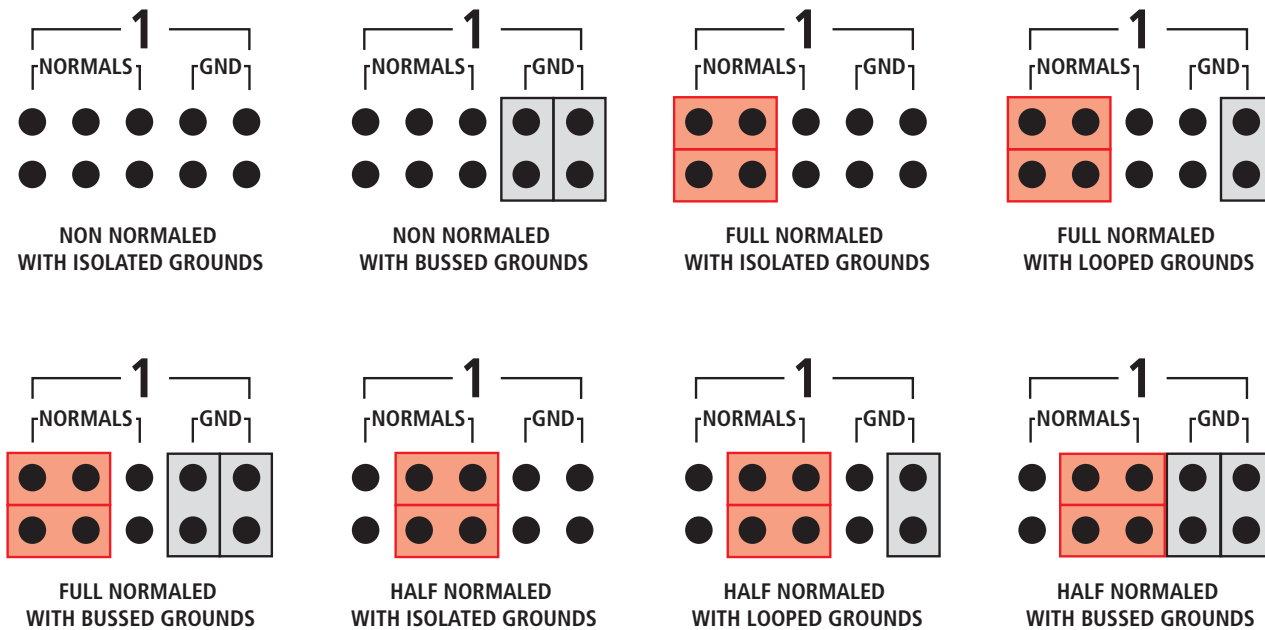
Our 969-A Series features our innovative Programmable audio patchbays in a 2 x 48 1.5 or 2 RU size, and includes convenient 1-48 left-to-right numbering on the patchbay front for easy identification of circuits.

Programmable patchbays allow users to quickly and easily change the normals and grounding of individual circuits. Normals can be changed to full-normal, half-normal or non-normal. Grounding can be changed to bussed, isolated or looped (for switched grounds, consider the 969-S Series).

Because it's programmable, the 969 Series can serve as the foundation for virtually any new, reconfigured or legacy installation. The end result is a patchbay that allows integrators and installers to quickly re-configure patching systems, accommodate customer change-orders, and speed service-calls.

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Normals and Grounding for individual circuits can be easily changed by the end-user</li> <li>• Normals can be programmed to full-normal, half-normal or non-normal; Grounding can be programmed to bussed, isolated or looped</li> <li>• Rear interface options include E-3, E-90, ID (punchdown) and D25</li> <li>• Gold-plated contacts used in E3 and E90 rear interface</li> <li>• Jacks rated to 30,000 minimum insertion cycles</li> <li>• Precision-stamped reinforced steel jack frame</li> </ul> | <ul style="list-style-type: none"> <li>• Copper-nickel-silver alloy leaf springs with gold-plated cross bar switching contacts and nickel-plated sleeve bushings</li> <li>• Wired with low-capacitance, AES/EBU-rated shielded, twisted pair</li> <li>• Panels made from 3/16" solid aluminum with a durable powder-coat finish, with 1-48 left-to-right numbering for easy circuit ID</li> <li>• Large user-friendly designation strips</li> <li>• Mating connectors, contacts and normals (where applicable) are included with all standard rear interfaces</li> </ul> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|





**How to Identify a 969-A Series Programmable Patchbay:**

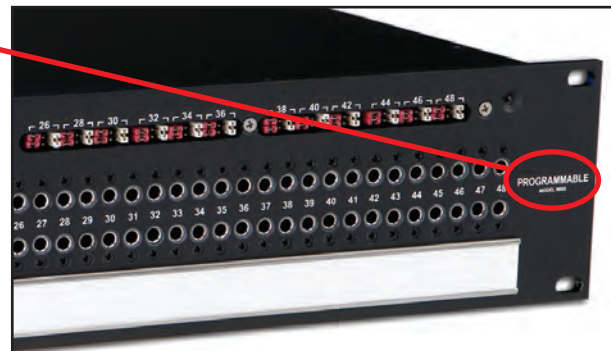
969-A Series programmable patchbays can be identified by the word “Programmable” and “Model 969A” on the far right edge of the patchbay.

**How to Change the Programming for a Circuit:**

1. Remove the two designation strips, as shown in the photo on right.
2. Find your desired configuration in the diagram above.
3. Arrange the programming shunts to match the appropriate diagram.

Note: Each circuit can be programmed independently.

4. Ample shunts are provided with every programmable patchbay. Red shunts are placed horizontally and are used for normalizing options. White shunts (shown as light gray above) are placed vertically and are used for grounding options.
5. The circuits are numbered 1–48 and correspond to vertical jack pairs reading left to right, with the even-numbered circuits on the top row, and the odd-numbered circuits on the bottom row.
6. Replace the designation strips.



969-A Series Programmable patchbay shown with the top designation strip removed, exposing red and white external programming shunts.



**PROGRAMMING SHUNTS**

These programming instructions can be used for both the 969-A Series and the older 969 Series.

DESCRIPTION	PRODUCT NUMBER
<b>E-3, 1.5 RU, Black, 7" Chassis</b>	
E3, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNABH/E3 M2OU7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNAIH/E3 M2OU7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNALH/E3 M2OU7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNABH/E3 M2OU7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNAIH/E3 M2OU7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNALH/E3 M2OU7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Non-Normal, Bussed	B96DC-NNABH/E3 M2OU7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Non-Normal, Isolated	B96DC-NNAIH/E3 M2OU7B
<b>E-3, 1.5 RU, Black, 12" Chassis</b>	
E3, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNABH/E3 M2OU12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNAIH/E3 M2OU12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNALH/E3 M2OU12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNABH/E3 M2OU12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNAIH/E3 M2OU12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNALH/E3 M2OU12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Non-Normal, Bussed	B96DC-NNABH/E3 M2OU12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Non-Normal, Isolated	B96DC-NNAIH/E3 M2OU12B
<b>E-3, 2 RU, Black, 7" Chassis</b>	
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNABT/E3 M2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNAIT/E3 M2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNALT/E3 M2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNABT/E3 M2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNAIT/E3 M2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNALT/E3 M2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Non-Normal, Bussed	B96DC-NNABT/E3 M2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Non-Normal, Isolated	B96DC-NNAIT/E3 M2OU7B
<b>E-3, 2 RU, Black, 12" Chassis</b>	
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNABT/E3 M2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNAIT/E3 M2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNALT/E3 M2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNABT/E3 M2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNAIT/E3 M2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNALT/E3 M2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Non-Normal, Bussed	B96DC-NNABT/E3 M2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Non-Normal, Isolated	B96DC-NNAIT/E3 M2OU12B
<b>E-90, 1.5 RU, Black, 7" Chassis</b>	
E90, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNABH/E90 M2OU7B
E90, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNAIH/E90 M2OU7B
E90, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNALH/E90 M2OU7B
E90, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNABH/E90 M2OU7B
E90, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNAIH/E90 M2OU7B
E90, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNALH/E90 M2OU7B
E90, 2x48, 1.5 RU, Black, 7" Chassis, Non-Normal, Bussed	B96DC-NNABH/E90 M2OU7B
E90, 2x48, 1.5 RU, Black, 7" Chassis, Non-Normal, Isolated	B96DC-NNAIH/E90 M2OU7B
<b>E-90, 1.5 RU, Black, 12" Chassis</b>	
E90, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNABH/E90 M2OU12B
E90, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNAIH/E90 M2OU12B
E90, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNALH/E90 M2OU12B
E90, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNABH/E90 M2OU12B
E90, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNAIH/E90 M2OU12B
E90, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNALH/E90 M2OU12B
E90, 2x48, 1.5 RU, Black, 12" Chassis, Non-Normal, Bussed	B96DC-NNABH/E90 M2OU12B
E90, 2x48, 1.5 RU, Black, 12" Chassis, Non-Normal, Isolated	B96DC-NNAIH/E90 M2OU12B

Note: The Product Ordering Code for the 969-A Series uses an "A" as the code for the "Normaling" option. The Product Ordering Code for the phased-out 969 Series used a "P" for the "Normaling" option, to indicate "Programmable."

DESCRIPTION	PRODUCT NUMBER
<b>E-90, 2 RU, Black, 7" Chassis</b>	
E90, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNABT/E90 M2OU7B
E90, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNAIT/E90 M2OU7B
E90, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNALT/E90 M2OU7B
E90, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNABT/E90 M2OU7B
E90, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNAIT/E90 M2OU7B
E90, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNALT/E90 M2OU7B
E90, 2x48, 2 RU, Black, 7" Chassis, Non-Normal, Bussed	B96DC-NNABT/E90 M2OU7B
E90, 2x48, 2 RU, Black, 7" Chassis, Non-Normal, Isolated	B96DC-NNAIT/E90 M2OU7B
<b>E-90, 2 RU, Black, 12" Chassis</b>	
E90, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNABT/E90 M2OU12B
E90, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNAIT/E90 M2OU12B
E90, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNALT/E90 M2OU12B
E90, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNABT/E90 M2OU12B
E90, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNAIT/E90 M2OU12B
E90, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNALT/E90 M2OU12B
E90, 2x48, 2 RU, Black, 12" Chassis, Non-Normal, Bussed	B96DC-NNABT/E90 M2OU12B
E90, 2x48, 2 RU, Black, 12" Chassis, Non-Normal, Isolated	B96DC-NNAIT/E90 M2OU12B
<b>ID, 1.5 RU, Black, 7" Chassis</b>	
ID, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNABH/ID M2OU7B
ID, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNAIH/ID M2OU7B
ID, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNALH/ID M2OU7B
ID, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNABH/ID M2OU7B
ID, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNAIH/ID M2OU7B
ID, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNALH/ID M2OU7B
ID, 2x48, 1.5 RU, Black, 7" Chassis, Non-Normal, Bussed	B96DC-NNABH/ID M2OU7B
ID, 2x48, 1.5 RU, Black, 7" Chassis, Non-Normal, Isolated	B96DC-NNAIH/ID M2OU7B
<b>ID, 1.5 RU, Black, 12" Chassis</b>	
ID, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNABH/ID M2OU12B
ID, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNAIH/ID M2OU12B
ID, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNALH/ID M2OU12B
ID, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNABH/ID M2OU12B
ID, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNAIH/ID M2OU12B
ID, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNALH/ID M2OU12B
ID, 2x48, 1.5 RU, Black, 12" Chassis, Non-Normal, Bussed	B96DC-NNABH/ID M2OU12B
ID, 2x48, 1.5 RU, Black, 12" Chassis, Non-Normal, Isolated	B96DC-NNAIH/ID M2OU12B
<b>ID, 2 RU, Black, 7" Chassis</b>	
ID, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNABT/ID M2OU7B
ID, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNAIT/ID M2OU7B
ID, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNALT/ID M2OU7B
ID, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNABT/ID M2OU7B
ID, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNAIT/ID M2OU7B
ID, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNALT/ID M2OU7B
ID, 2x48, 2 RU, Black, 7" Chassis, Non-Normal, Bussed	B96DC-NNABT/ID M2OU7B
ID, 2x48, 2 RU, Black, 7" Chassis, Non-Normal, Isolated	B96DC-NNAIT/ID M2OU7B
<b>ID, 2 RU, Black, 12" Chassis</b>	
ID, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNABT/ID M2OU12B
ID, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNAIT/ID M2OU12B
ID, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNALT/ID M2OU12B
ID, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNABT/ID M2OU12B
ID, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNAIT/ID M2OU12B
ID, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNALT/ID M2OU12B
ID, 2x48, 2 RU, Black, 12" Chassis, Non-Normal, Bussed	B96DC-NNABT/ID M2OU12B
ID, 2x48, 2 RU, Black, 12" Chassis, Non-Normal, Isolated	B96DC-NNAIT/ID M2OU12B

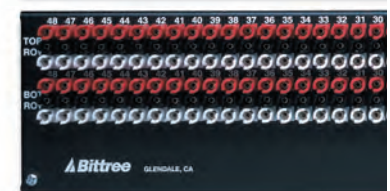
Note: The Product Ordering Code for the 969-A Series uses an "A" as the code for the "Normaling" option. The Product Ordering Code for the phased-out 969 Series used a "P" for the "Normaling" option, to indicate "Programmable."

DESCRIPTION	PRODUCT NUMBER
<b>D25, 1.5 RU, Black, 7" Chassis</b>	
D25, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNABH/D25 M2OU7B
D25, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNAIH/D25 M2OU7B
D25, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNALH/D25 M2OU7B
D25, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNABH/D25 M2OU7B
D25, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNAIH/D25 M2OU7B
D25, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNALH/D25 M2OU7B
D25, 2x48, 1.5 RU, Black, 7" Chassis, Non-Normal, Bussed	B96DC-NNABH/D25 M2OU7B
D25, 2x48, 1.5 RU, Black, 7" Chassis, Non-Normal, Isolated	B96DC-NNAIH/D25 M2OU7B
<b>D25, 1.5 RU, Black, 12" Chassis</b>	
D25, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNABH/D25 M2OU12B
D25, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNAIH/D25 M2OU12B
D25, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNALH/D25 M2OU12B
D25, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNABH/D25 M2OU12B
D25, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNAIH/D25 M2OU12B
D25, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNALH/D25 M2OU12B
D25, 2x48, 1.5 RU, Black, 12" Chassis, Non-Normal, Bussed	B96DC-NNABH/D25 M2OU12B
D25, 2x48, 1.5 RU, Black, 12" Chassis, Non-Normal, Isolated	B96DC-NNAIH/D25 M2OU12B
<b>D25, 2 RU, Black, 7" Chassis</b>	
D25, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNABT/D25 M2OU7B
D25, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNAIT/D25 M2OU7B
D25, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNALT/D25 M2OU7B
D25, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNABT/D25 M2OU7B
D25, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNAIT/D25 M2OU7B
D25, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNALT/D25 M2OU7B
D25, 2x48, 2 RU, Black, 7" Chassis, Non-Normal, Bussed	B96DC-NNABT/D25 M2OU7B
D25, 2x48, 2 RU, Black, 7" Chassis, Non-Normal, Isolated	B96DC-NNAIT/D25 M2OU7B
<b>D25, 2 RU, Black, 12" Chassis</b>	
D25, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNABT/D25 M2OU12B
D25, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNAIT/D25 M2OU12B
D25, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNALT/D25 M2OU12B
D25, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNABT/D25 M2OU12B
D25, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNAIT/D25 M2OU12B
D25, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNALT/D25 M2OU12B
D25, 2x48, 2 RU, Black, 12" Chassis, Non-Normal, Bussed	B96DC-NNABT/D25 M2OU12B
D25, 2x48, 2 RU, Black, 12" Chassis, Non-Normal, Isolated	B96DC-NNAIT/D25 M2OU12B

Note: The Product Ordering Code for the 969-A Series uses an "A" as the code for the "Normaling" option. The Product Ordering Code for the phased-out 969 Series used a "P" for the "Normaling" option, to indicate "Programmable."

### REAR INTERFACE OPTIONS

The 969-A Series comes with four rear interface options – E3, E90, ID (Punchdown) and D25. Full views of E3, E90 and ID (Punchdown) rear interfaces can be seen throughout this catalog; full view of the D25 rear interface can be seen at Bittree.com.





For fast, easy ordering visit [bittree.com](http://bittree.com)



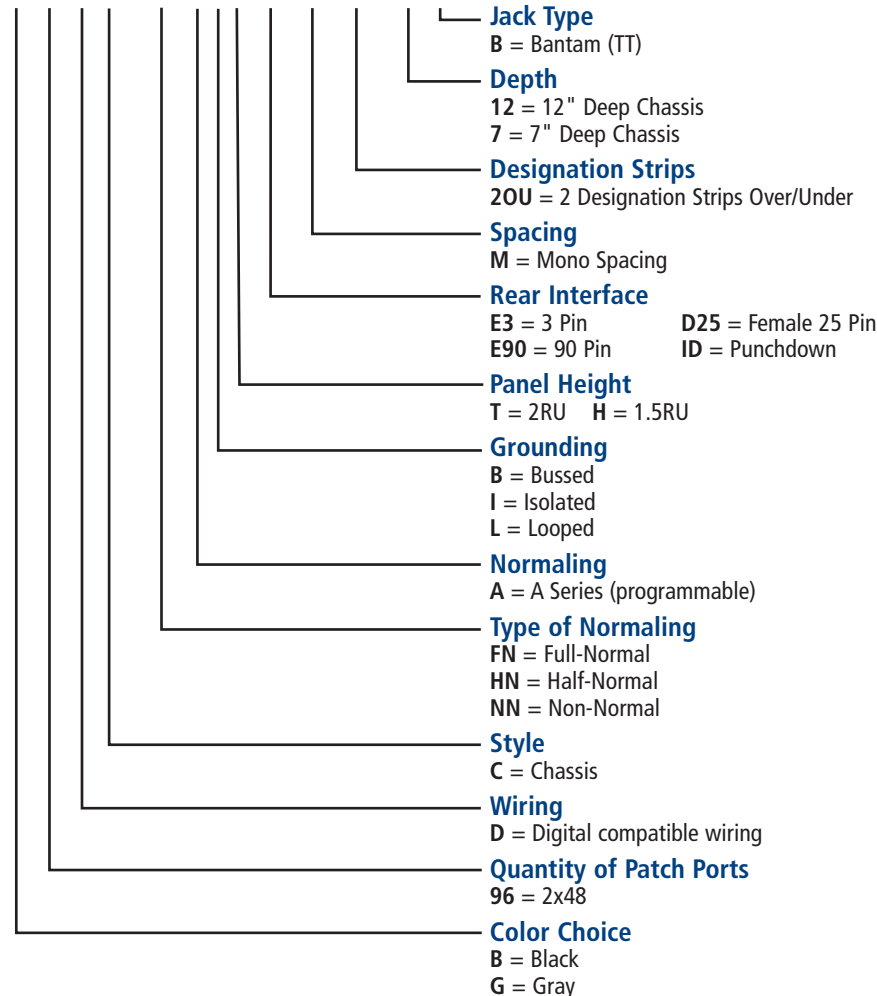
BPC PATCH CORDS

**AUDIO BANTAM (TT)**  
**BPC 24 00 – 110**

- Color**
- 00= Black
- 02= Red
- 04= Yellow
- 05= Green
- 06= Blue
- 07= Purple
- Length in Inches (cm)**
- 24 (61)
- 36 (92)
- 48 (122)
- 60 (153)
- 72 (184)

Our easy-to-use Ordering Codes let you order the exact patching system you need. As shown in the chart below, simply choose the option you want for each specification.

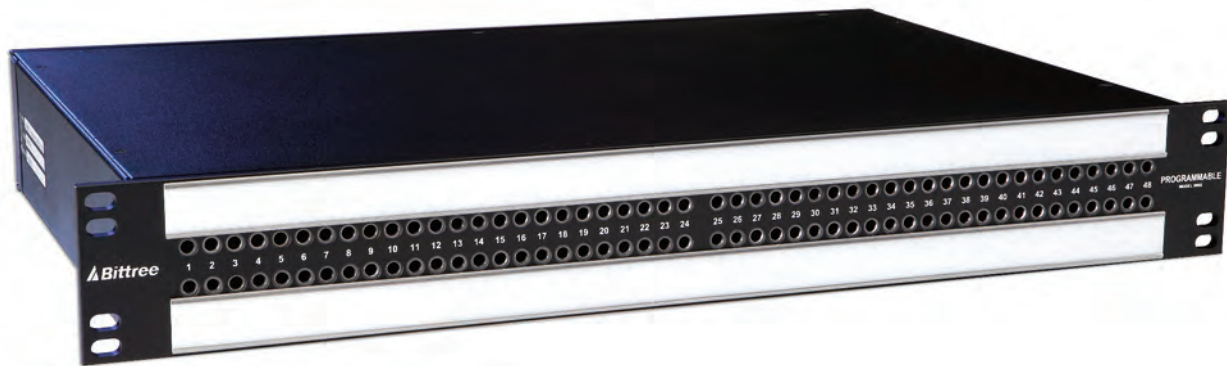
**B 96 D C – FN A I T /E3 M 2OU 12 B**



Mating connectors, contacts and normals (where applicable) are included with standard rear interface audio patchbays. Lacing bars are included with all audio patchbays.

Note: The Product Ordering Code for the 969-A Series uses an "A" as the code for the "Normaling" option. The Product Ordering Code for the phased-out 969 Series used a "P" for the "Normaling" option, to indicate "Programmable."





- **Programmable Audio Bantam (TT) Patchbay**
- **Normals and Grounds can be easily reprogrammed by the end-user**
- **Allows Switched Grounds – for a more stable signal structure**
- **High-density 2 x 48 jack configuration; 1.5 or 2 RU size**
- **Rear interface options include E-3, E-90, ID (punchdown) and D25**
- **1-48 numbering on patchbay front for easy circuit identification**

Our 969-S Series features our innovative Programmable audio patchbays in a 2 x 48 1.5 or 2 RU size, with the added capability of programming switched grounds.

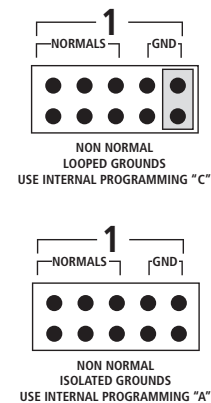
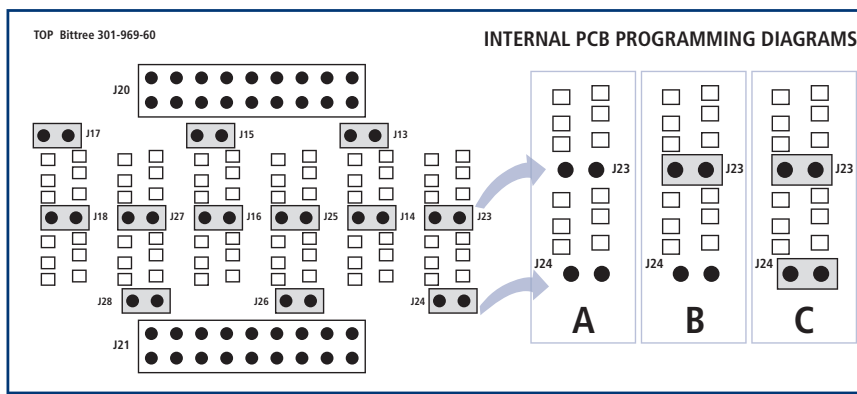
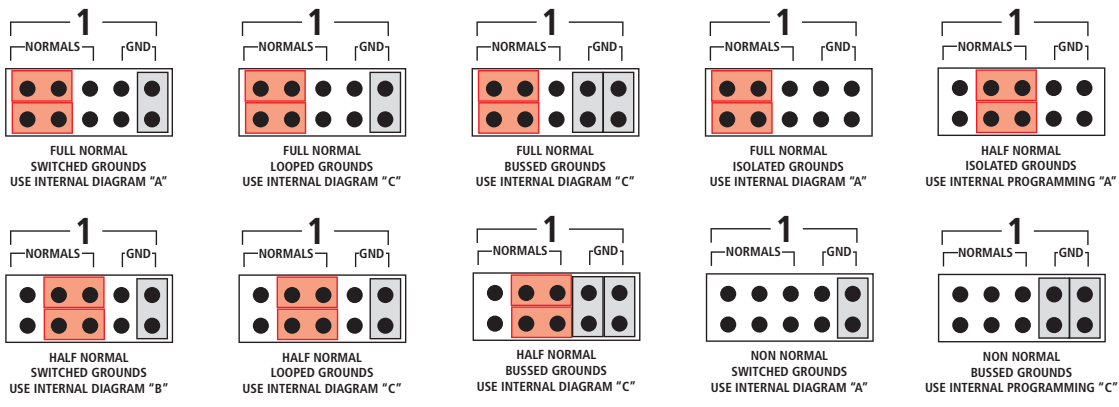
Switched grounds can help eliminate hard-to-find ground loops, and because it provides a more stable signal grounding structure, it's ideal for systems with audio signals coming from numerous locations.

The 969-S programmable patchbay allow users to quickly and easily change the normals and grounding of individual circuits. Normals can be changed to full-normal, half-normal or non-normal. Grounding can be changed to switched, bussed, isolated or looped.

Because it's programmable, the 969-S Series can serve as the foundation for virtually any new, reconfigured or legacy installation. The end result is a patchbay that allows integrators and installers to quickly re-configure patching systems, accommodate customer change-orders, and speed service-calls.

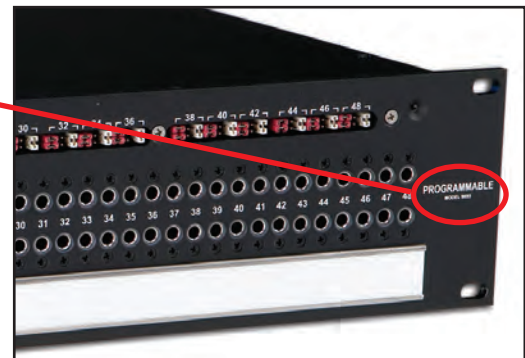
- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Normals and Grounding for individual circuits can be easily changed by the end-user</li> <li>• Normals can be programmed to full-normal, half-normal or non-normal; Grounding can be programmed to switched, bussed, isolated or looped</li> <li>• Rear interface options include E-3, E-90, ID (punchdown) and D25</li> <li>• Gold-plated contacts used in E3 and E90 rear interface</li> <li>• Jacks rated to 30,000 minimum insertion cycles</li> <li>• Precision-stamped reinforced steel jack frame</li> </ul> | <ul style="list-style-type: none"> <li>• Copper-nickel-silver alloy leaf springs with gold-plated cross bar switching contacts and nickel-plated sleeve bushings</li> <li>• Wired with low-capacitance, AES/EBU-rated shielded, twisted pair</li> <li>• Panels made from 3/16" solid aluminum with a durable powder-coat finish, with 1-48 left-to-right numbering for easy circuit ID</li> <li>• Large user-friendly designation strips</li> <li>• Mating connectors, contacts and normals (where applicable) are included with all standard rear interfaces</li> </ul> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

FRONT PORT EXTERNAL PROGRAMMING (under designation strips)



**How to Identify a 969-S Series Programmable Patchbay:**

969-S Series programmable patchbays can be identified by the word “Programmable” and “Model 969S” on the far right edge of the patchbay.



**How to Change the Programming for a Circuit:**

1. Remove the two designation strips.
2. Find your desired configuration in the diagram above.
3. Arrange the programming shunts to match the appropriate diagram. Note: Each circuit can be programmed independently.
4. Ample shunts are provided with every patchbay. Red shunts are placed horizontally and are used for normalizing. White shunts (shown as light gray above) are placed vertically and are used for grounding.
5. The circuits are numbered 1–48 and correspond to vertical jack pairs reading left to right, with the even-numbered circuits on the top row, and the odd-numbered circuits on the bottom row.
6. For the internal programming, unscrew the screws along the top edges and take off the patchbay dust cover. Locate the Internal PCB Boards inside, which are right behind the back of the jacks (for a better view, turn the rear of the patchbay toward you). There are eight PCB Boards; each one holds six circuits.
7. Depending on the Normal/Grounding configuration you want for each circuit, choose Internal Programming Diagram A, B or C from the blue box above and program accordingly, using the same red and white shunts.
8. Replace the patchbay dust cover and designation strips

969-S Series Programmable patchbay shown with top designation strip removed, exposing red and white external programming shunts.

DESCRIPTION	PRODUCT NUMBER
<b>E3, 1.5 RU, Black</b>	
E3, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNSSH/E3 M2OU7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNSSH/E3 M2OU7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Non-Normal, Switched	B96DC-NNSSH/E3 M2OU7B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNSSH/E3 M2OU12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNSSH/E3 M2OU12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Non-Normal, Switched	B96DC-NNSSH/E3 M2OU12B
<b>E3, 2 RU, Black</b>	
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNSST/E3 M2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNSST/E3 M2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Non-Normal, Switched	B96DC-NNSST/E3 M2OU7B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNSST/E3 M2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNSST/E3 M2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Non-Normal, Switched	B96DC-NNSST/E3 M2OU12B
<b>E90, 1.5 RU, Black</b>	
E90, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNSSH/E90 M2OU7B
E90, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNSSH/E90 M2OU7B
E90, 2x48, 1.5 RU, Black, 7" Chassis, Non-Normal, Switched	B96DC-NNSSH/E90 M2OU7B
E90, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNSSH/E90 M2OU12B
E90, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNSSH/E90 M2OU12B
E90, 2x48, 1.5 RU, Black, 12" Chassis, Non-Normal, Switched	B96DC-NNSSH/E90 M2OU12B
<b>E90, 2 RU, Black</b>	
E90, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNSST/E90 M2OU7B
E90, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNSST/E90 M2OU7B
E90, 2x48, 2 RU, Black, 7" Chassis, Non-Normal, Switched	B96DC-NNSST/E90 M2OU7B
E90, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNSST/E90 M2OU12B
E90, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNSST/E90 M2OU12B
E90, 2x48, 2 RU, Black, 12" Chassis, Non-Normal, Switched	B96DC-NNSST/E90 M2OU12B
<b>ID, 1.5 RU, Black</b>	
ID, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNSSH/ID M2OU7B
ID, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNSSH/ID M2OU7B
ID, 2x48, 1.5 RU, Black, 7" Chassis, Non-Normal, Switched	B96DC-NNSSH/ID M2OU7B
ID, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNSSH/ID M2OU12B
ID, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNSSH/ID M2OU12B
ID, 2x48, 1.5 RU, Black, 12" Chassis, Non-Normal, Switched	B96DC-NNSSH/ID M2OU12B
<b>ID, 2 RU, Black</b>	
ID, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNSST/ID M2OU7B
ID, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNSST/ID M2OU7B
ID, 2x48, 2 RU, Black, 7" Chassis, Non-Normal, Switched	B96DC-NNSST/ID M2OU7B
ID, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNSST/ID M2OU12B
ID, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNSST/ID M2OU12B
ID, 2x48, 2 RU, Black, 12" Chassis, Non-Normal, Switched	B96DC-NNSST/ID M2OU12B
<b>D25, 1.5 RU, Black</b>	
D25, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNSSH/D25 M2OU7B
D25, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNSSH/D25 M2OU7B
D25, 2x48, 1.5 RU, Black, 7" Chassis, Non-Normal, Switched	B96DC-NNSSH/D25 M2OU7B
D25, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNSSH/D25 M2OU12B
D25, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNSSH/D25 M2OU12B
D25, 2x48, 1.5 RU, Black, 12" Chassis, Non-Normal, Switched	B96DC-NNSSH/D25 M2OU12B
<b>D25, 2 RU, Black</b>	
D25, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNSST/D25 M2OU7B
D25, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNSST/D25 M2OU7B
D25, 2x48, 2 RU, Black, 7" Chassis, Non-Normal, Switched	B96DC-NNSST/D25 M2OU7B
D25, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNSST/D25 M2OU12B
D25, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNSST/D25 M2OU12B
D25, 2x48, 2 RU, Black, 12" Chassis, Non-Normal, Switched	B96DC-NNSST/D25 M2OU12B

For fast, easy ordering visit [bittree.com](http://bittree.com) A Bittree

**AUDIO BANTAM (TT)**

**BPC 24 00 – 110**

- Color**  
00= Black  
02= Red  
04= Yellow  
05= Green  
06= Blue  
07= Purple
- Length in Inches (cm)**  
24 (61)  
36 (92)  
48 (122)  
60 (153)  
72 (184)



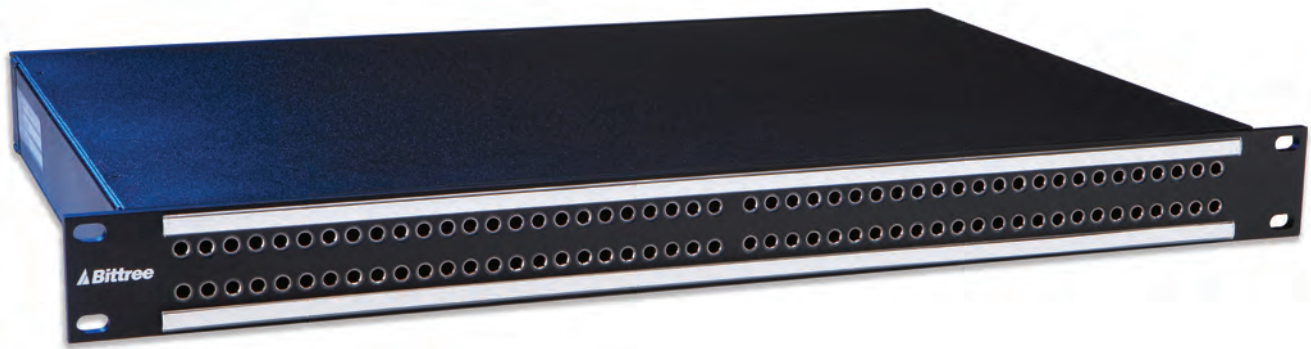
**BPC PATCH CORDS**

Our easy-to-use Ordering Codes let you order the exact patching system you need. As shown in the chart below, simply choose the option you want for each specification.

**B 96 D C – FN S S T /E3 M 2OU 12 B**

- Jack Type**  
B = Bantam (TT)
- Depth**  
12 = 12" Deep Chassis  
7 = 7" Deep Chassis
- Designation Strips**  
2OU = 2 Designation Strips Over/Under
- Spacing**  
M = Mono Spacing
- Rear Interface**  
E3 = 3 Pin      D25 = Female 25 Pin  
E90 = 90 Pin    ID = Punchdown
- Panel Height**  
T = 2RU    H = 1.5RU
- Grounding**  
S = Switched  
B = Bussed  
I = Isolated
- Normaling**  
S = S Series (programmable)
- Type of Normaling**  
FN = Full-Normal  
HN = Half-Normal  
NN = Non-Normal
- Style**  
C = Chassis
- Wiring**  
D = Digital compatible wiring
- Quantity of Patch Ports**  
96 = 2x48
- Color Choice**  
B = Black  
G = Gray

Mating connectors, contacts and normals (where applicable) are included with standard rear interface audio patchbays. Lacing bars are included with all audio patchbays.



- **Programmable Audio Bantam (TT) Patchbay**
- **Normals and Grounds can be easily reprogrammed by the end-user**
- **High-density 2 x 48 jack configuration; 1 RU size**
- **Small size is ideal for mobile production and other applications in tight quarters**
- **Rear interface options include E-3, E-56, E-90 and D25**

Our 968 Series features our innovative Programmable audio patchbays in a 2 x 48 1 RU size, making them ideal for mobile production and other applications in tight quarters.

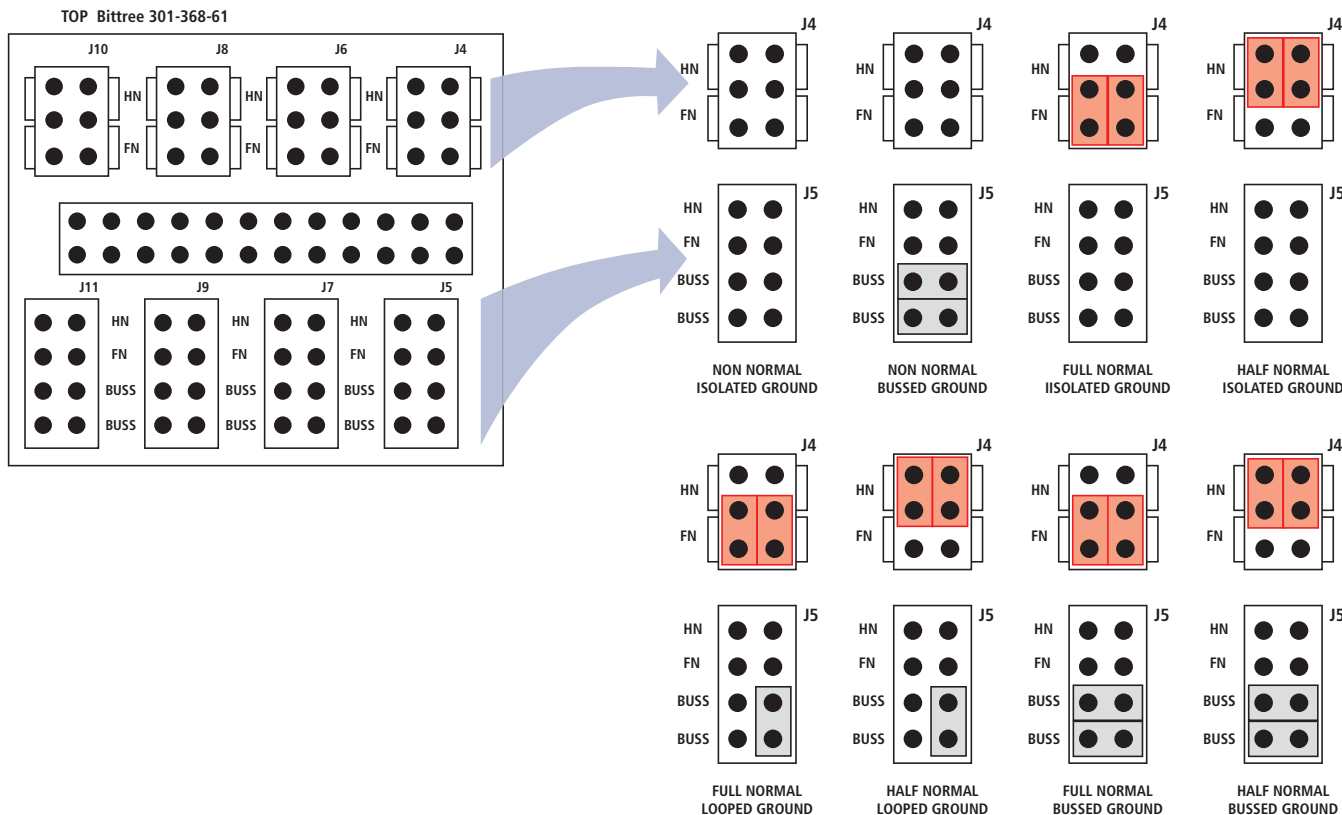
Programmable patchbays allow users to quickly and easily change the normals and grounding of individual circuits. Normals can be changed to full-normal, half-normal or non-normal. Grounding can be changed to bussed, isolated or looped (for switched grounds, consider the 968-S Series).

Because it's programmable, the 968 Series can serve as the foundation for virtually any new, reconfigured or legacy installation. The end result is a patchbay that allows integrators and installers to quickly re-configure patching systems, accommodate customer change-orders, and speed service-calls.

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Normals and Grounding for individual circuits can be easily changed by the end-user</li> <li>• Normals can be programmed to full-normal, half-normal or non-normal; Grounding can be programmed to bussed, isolated or looped</li> <li>• Rear interface options include E-3, E56, E-90 and D25</li> <li>• Gold-plated contacts used in E3 and E90 rear interface</li> <li>• Jacks rated to 30,000 minimum insertion cycles</li> <li>• Precision-stamped reinforced steel jack frame</li> </ul> | <ul style="list-style-type: none"> <li>• Copper-nickel-silver alloy leaf springs with gold-plated cross bar switching contacts and nickel-plated sleeve bushings</li> <li>• Wired with low-capacitance, AES/EBU-rated shielded, twisted pair</li> <li>• Panels made from 3/16" solid aluminum with a durable powder-coat finish</li> <li>• Large user-friendly designation strips</li> <li>• Mating connectors, contacts and normals (where applicable) are included with all standard rear interfaces</li> </ul> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



These programming instructions are for the newer 968 Rev-A Series. Programming instructions for the original 968 Series are on the following page.

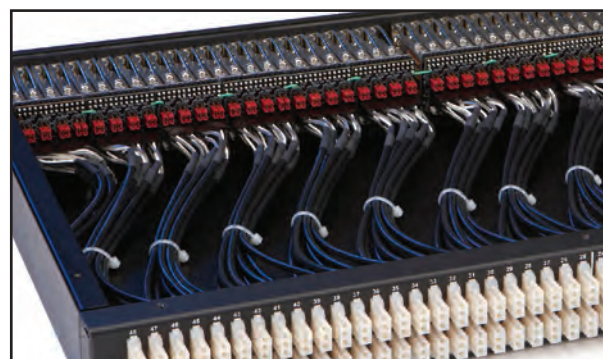


### How to Identify a 968 Series Programmable Patchbay:

968 Series programmable patchbays can only be identified by removing the top dust cover and looking for the presence of red and white programming shunts inside.

### How to Change the Programming for a Circuit:

1. Remove the top dust cover to expose the programming shunts.
2. Find your desired configuration in the diagram above.
3. Arrange the programming shunts to match the appropriate diagram. Note: Each circuit can be programmed independently.
4. Ample shunts are provided with every programmable patchbay. All shunts should be placed vertically. Red shunts are used for grounding options. White shunts (shown as light gray above) are used for normalizing options.
5. Replace the dust cover.

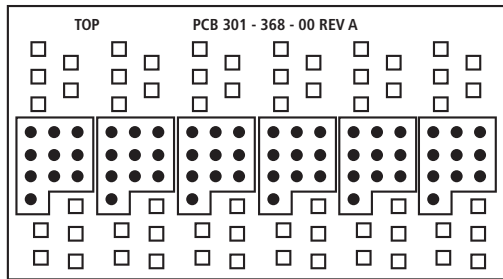


968 Series Programmable patchbay shown with dust cover removed, exposing red and white internal programming shunts.

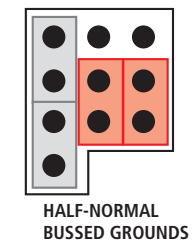
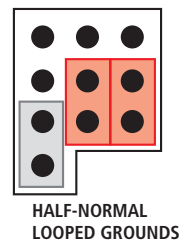
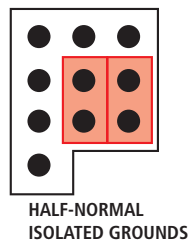
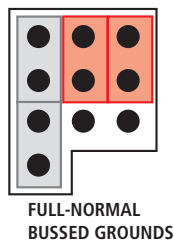
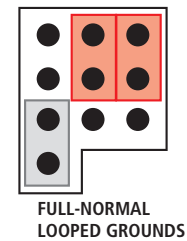
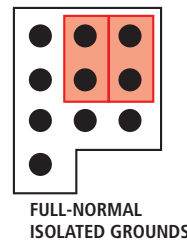
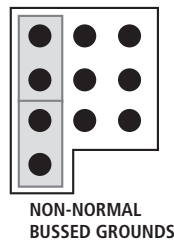
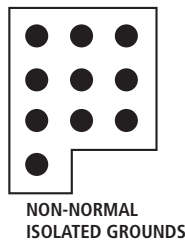


PROGRAMMING SHUNTS

These programming instructions are for the original 968 Series. Programming instructions for the newer 968 Rev-A Series are on the previous page.



PROGRAMMING SHUNTS

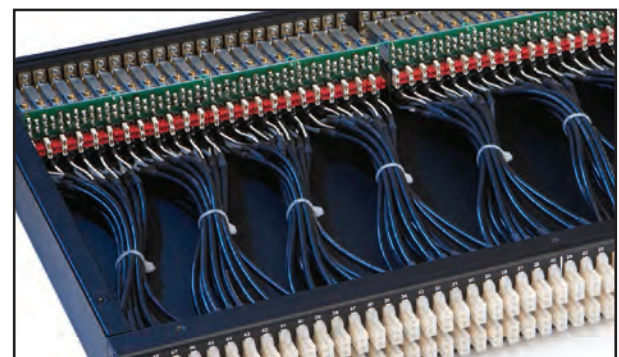


**How to Identify a 968 Series Programmable Patchbay:**

968 Series programmable patchbays can only be identified by removing the top dust cover and looking for the presence of red and white programming shunts inside.

**How to Change the Programming for a Circuit:**

1. Remove the top dust cover to expose the programming shunts.
2. Find your desired configuration in the diagram above.
3. Arrange the programming shunts to match the appropriate diagram. Note: Each circuit can be programmed independently.
4. Ample shunts are provided with every programmable patchbay. All shunts should be placed vertically. Red shunts are used for grounding options. White shunts (shown as light gray above) are used for normalizing options.
5. Replace the dust cover.



968 Series Programmable patchbay shown with dust cover removed, exposing red and white internal programming shunts.

DESCRIPTION	PRODUCT NUMBER
<b>E-3, 1 RU, 7", Black</b>	
E3, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNIBS/E3 M2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNIIS/E3 M2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNILS/E3 M2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNIBS/E3 M2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNIIS/E3 M2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNILS/E3 M2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-NNIBS/E3 M2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-NNIIS/E3 M2OU7B
<b>E-90, 1 RU, 7", Black</b>	
E90, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNIBS/E90 M2OU7B
E90, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNIIS/E90 M2OU7B
E90, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNILS/E90 M2OU7B
E90, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNIBS/E90 M2OU7B
E90, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNIIS/E90 M2OU7B
E90, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNILS/E90 M2OU7B
E90, 2x48, 1 RU, Black, 7" Chassis, Non-Normal, Bussed	B96DC-NNIBS/E90 M2OU7B
E90, 2x48, 1 RU, Black, 7" Chassis, Non-Normal, Isolated	B96DC-NNIIS/E90 M2OU7B
<b>D25, 1 RU, 7", Black</b>	
D25, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNIBS/D25 M2OU7B
D25, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNIIS/D25 M2OU7B
D25, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNILS/D25 M2OU7B
D25, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNIBS/D25 M2OU7B
D25, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNIIS/D25 M2OU7B
D25, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNILS/D25 M2OU7B
D25, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-NNIBS/D25 M2OU7B
D25, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-NNIIS/D25 M2OU7B
<b>E-56, 1 RU, 7", Black</b>	
E56, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNIBS/E56 M2OU7B
E56, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNIIS/E56 M2OU7B
E56, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNILS/E56 M2OU7B
E56, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNIBS/E56 M2OU7B
E56, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNIIS/E56 M2OU7B
E56, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNILS/E56 M2OU7B
E56, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-NNIBS/E56 M2OU7B
E56, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-NNIIS/E56 M2OU7B
<b>E-3, 1 RU, 12", Black</b>	
E3, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNIBS/E3 M2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNIIS/E3 M2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNILS/E3 M2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNIBS/E3 M2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNIIS/E3 M2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNILS/E3 M2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-NNIBS/E3 M2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-NNIIS/E3 M2OU12B
<b>E-90, 1 RU, 12", Black</b>	
E90, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNIBS/E90 M2OU12B
E90, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNIIS/E90 M2OU12B
E90, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNILS/E90 M2OU12B
E90, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNIBS/E90 M2OU12B
E90, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNIIS/E90 M2OU12B
E90, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNILS/E90 M2OU12B
E90, 2x48, 1 RU, Black, 12" Chassis, Non-Normal, Bussed	B96DC-NNIBS/E90 M2OU12B
E90, 2x48, 1 RU, Black, 12" Chassis, Non-Normal, Isolated	B96DC-NNIIS/E90 M2OU12B

Manufacturing techniques have been improved on the 968 Series patchbay, changing how it's programmed. Be sure to use the correct set of programming instructions, found on pages 43 and 44.

DESCRIPTION	PRODUCT NUMBER
<b>D25, 1 RU, 12", Black</b>	
D25, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNIBS/D25 M2OU12B
D25, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNIIS/D25 M2OU12B
D25, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNILS/D25 M2OU12B
D25, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNIBS/D25 M2OU12B
D25, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNIIS/D25 M2OU12B
D25, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNILS/D25 M2OU12B
D25, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-NNIBS/D25 M2OU12B
D25, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-NNIIS/D25 M2OU12B
<b>E56, 1 RU, 12", Black</b>	
E56, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNIBS/E56 M2OU12B
E56, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNIIS/E56 M2OU12B
E56, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNILS/E56 M2OU12B
E56, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNIBS/E56 M2OU12B
E56, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNIIS/E56 M2OU12B
E56, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNILS/E56 M2OU12B
E56, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-NNIBS/E56 M2OU12B
E56, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-NNIIS/E56 M2OU12B

Manufacturing techniques have been improved on the 968 Series patchbay, changing how it's programmed. Be sure to use the correct set of programming instructions, found on pages 43 and 44.

### REAR INTERFACE OPTIONS

The 968 Series comes with four rear interface options – E3, E56, E90 and D25. Full views of E3, E56 and E90 rear interfaces can be seen throughout this catalog; full view of the D25 rear interface can be seen at [Bittree.com](http://Bittree.com).



For fast, easy ordering visit [bittree.com](http://bittree.com) Patchcord Store A Bittree



BPC PATCH CORDS

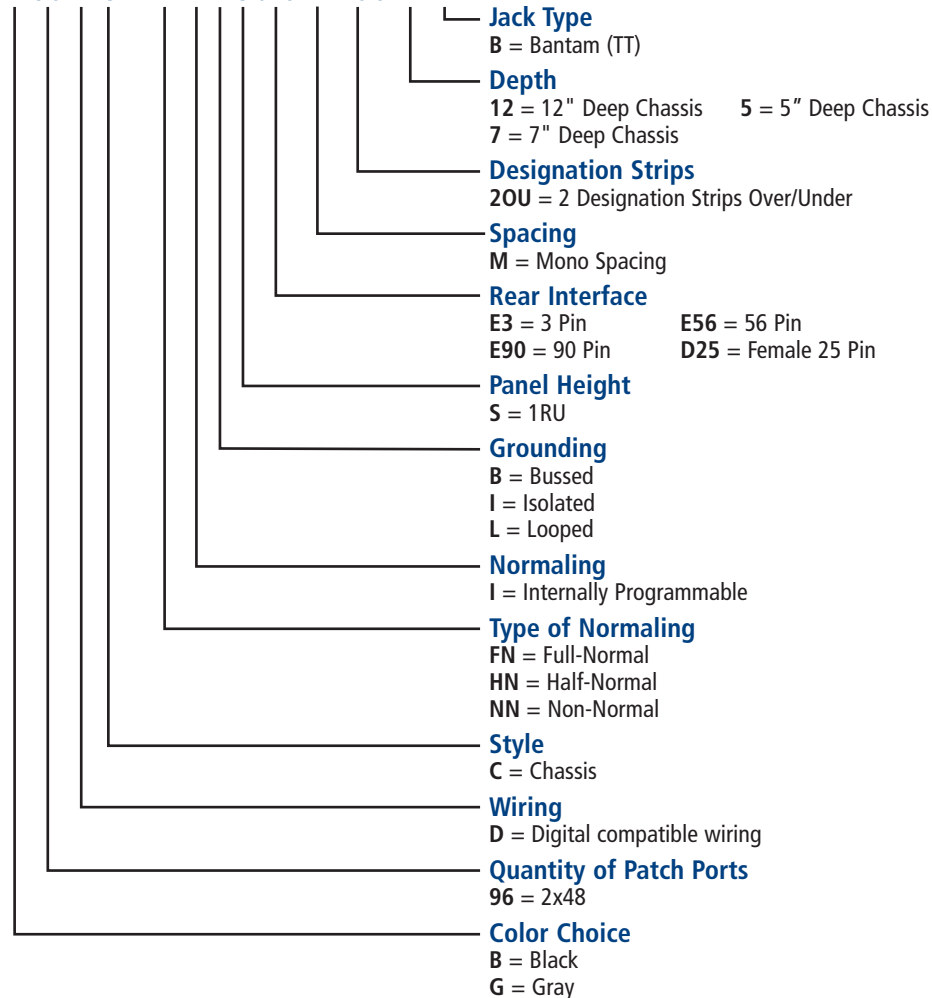
**AUDIO BANTAM (TT)**

**BPC 24 00 - 110**

- Color**
- 00= Black
- 02= Red
- 04= Yellow
- 05= Green
- 06= Blue
- 07= Purple
- Length in Inches (cm)**
- 24 (61)
- 36 (92)
- 48 (122)
- 60 (153)
- 72 (184)

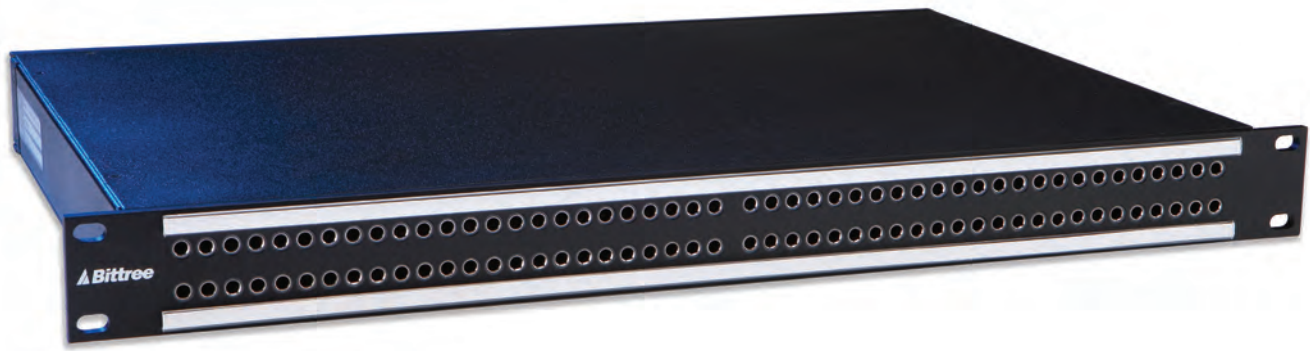
Our easy-to-use Ordering Codes let you order the exact patching system you need. As shown in the chart below, simply choose the option you want for each specification.

**B 96 D C - FN I I S /E3 M 20U 12 B**



Mating connectors, contacts and normals (where applicable) are included with standard rear interface audio patchbays. Lacing bars are included with all audio patchbays.





- **Programmable Audio Bantam (TT) Patchbay**
- **Normals and Grounds can be easily reprogrammed by the end-user**
- **Allows Switched Grounds – for a more stable signal structure**
- **High-density 2 x 48 jack configuration; 1 RU size**
- **Small size is ideal for mobile production and other applications in tight quarters**
- **Rear interface options include E-3, E-56, E-90 and D25**

Our 968-S Series features our innovative Programmable audio patchbays in a 2 x 48 1 RU size, making them ideal for mobile production and other applications in tight quarters. In addition, the 968-S lets you program switched grounds.

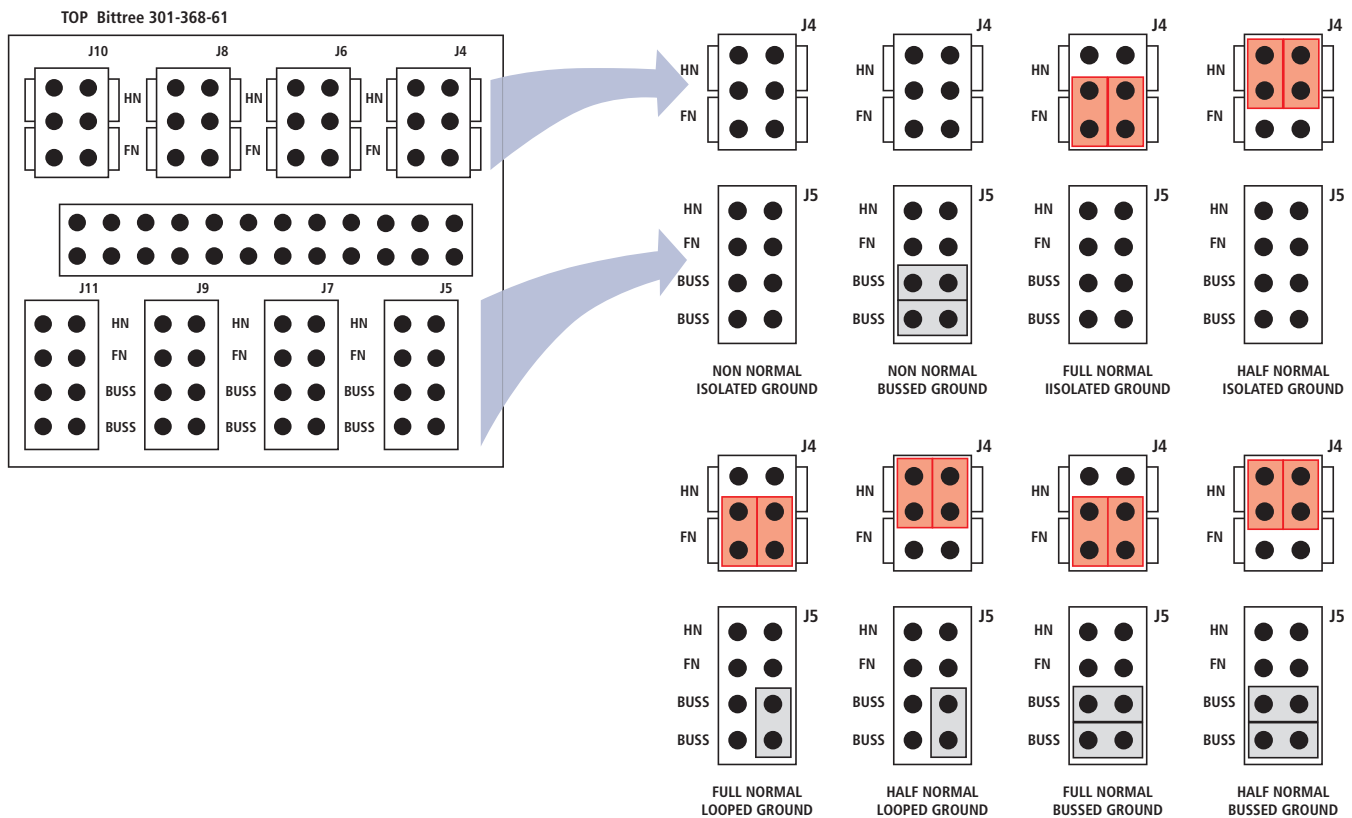
Switched grounds can help eliminate hard-to-find ground loops, and because it provides a more stable signal grounding structure, it's ideal for systems with audio signals coming from numerous locations.

Programmable patchbays allow users to quickly and easily change the normals and grounding of individual circuits. Normals can be changed to full-normal, half-normal or non-normal. Grounding can be changed to switched, bussed, isolated or looped.

Because it's programmable, the 968-S Series can serve as the foundation for virtually any new, reconfigured or legacy installation. The end result is a patchbay that allows integrators and installers to quickly re-configure patching systems, accommodate customer change-orders, and speed service-calls.

- Normals and Grounding for individual circuits can be easily changed by the end-user
- Normals can be programmed to full-normal, half-normal or non-normal; Grounding can be programmed to switched, bussed, isolated or looped
- Rear interface options include E-3, E-56, E-90 and D25
- Gold-plated contacts used in E3 and E90 rear interface
- Jacks rated to 30,000 minimum insertion cycles
- Precision-stamped reinforced steel jack frame
- Copper-nickel-silver alloy leaf springs with gold-plated cross bar switching contacts and nickel-plated sleeve bushings
- Wired with low-capacitance, AES/EBU-rated shielded, twisted pair
- Panels made from 3/16" solid aluminum with a durable powder-coat finish
- Large user-friendly designation strips
- Mating connectors, contacts and normals (where applicable) are included with all standard rear interfaces





**How to Identify a 968 Series Programmable Patchbay:**

968 Series programmable patchbays can only be identified by removing the top dust cover and looking for the presence of red and white programming shunts inside.

**How to Change the Programming for a Circuit:**

1. Remove the top dust cover to expose the programming shunts.
2. Find your desired configuration in the diagram above.
3. Arrange the programming shunts to match the appropriate diagram. Note: Each circuit can be programmed independently.
4. Ample shunts are provided with every programmable patchbay. All shunts should be placed vertically. Red shunts are used for grounding options. White shunts (shown as light gray above) are used for normalizing options.
5. Replace the dust cover.



968 Series Programmable patchbay shown with dust cover removed, exposing red and white internal programming shunts.



**PROGRAMMING SHUNTS**

DESCRIPTION	PRODUCT NUMBER
<b>E-3, 1 RU, Black</b>	
E3, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNSSS/E3 M2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNSSS/E3 M2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Non-Normal, Switched	B96DC-NNSSS/E3 M2OU7B
E3, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNSSS/E3 M2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNSSS/E3 M2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Non-Normal, Switched	B96DC-NNSSS/E3 M2OU2B
<b>E-90, 1 RU, Black</b>	
E90, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNSSS/E90 M2OU7B
E90, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNSSS/E90 M2OU7B
E90, 2x48, 1 RU, Black, 7" Chassis, Non-Normal, Switched	B96DC-NNSSS/E90 M2OU7B
E90, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNSSS/E90 M2OU12B
E90, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNSSS/E90 M2OU12B
E90, 2x48, 1 RU, Black, 12" Chassis, Non-Normal, Switched	B96DC-NNSSS/E90 M2OU12B
<b>D25, 1 RU, Black</b>	
D25, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNSSS/D25 M2OU7B
D25, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNSSS/D25 M2OU7B
D25, 2x48, 1 RU, Black, 7" Chassis, Non-Normal, Switched	B96DC-NNSSS/D25 M2OU7B
D25, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNSSS/D25 M2OU12B
D25, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNSSS/D25 M2OU12B
D25, 2x48, 1 RU, Black, 12" Chassis, Non-Normal, Switched	B96DC-NNSSS/D25 M2OU2B

### REAR INTERFACE OPTIONS

The 968-S Series comes with four rear interface options – E3, E56, E90 and D25. Full views of E3, E56 and E90 rear interfaces can be seen throughout this catalog; full view of the D25 rear interface can be seen at [Bittree.com](http://Bittree.com).



For fast, easy ordering visit [bittree.com](http://bittree.com)



BPC PATCH CORDS

**AUDIO BANTAM (TT)**

**BPC 24 00 – 110**

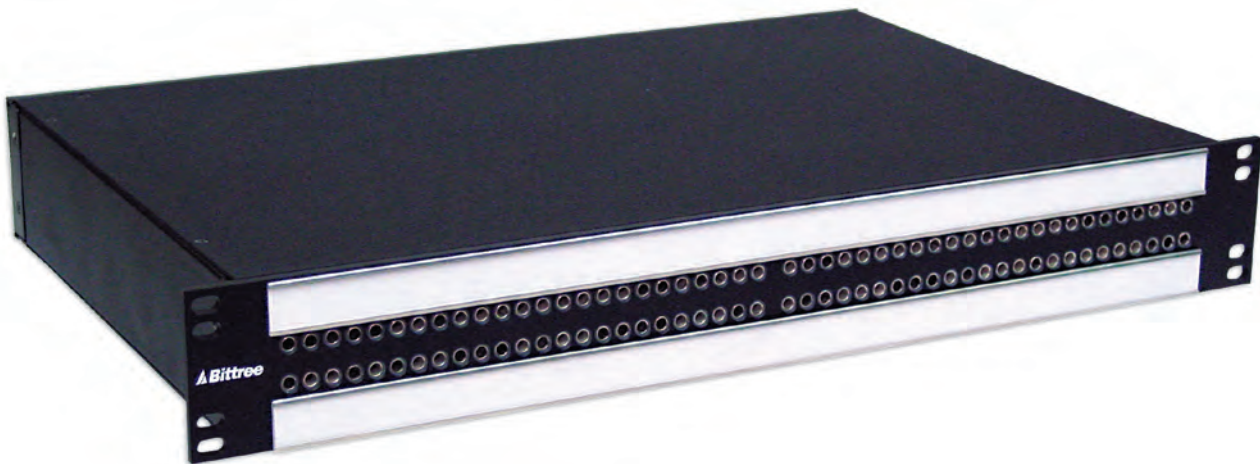
- Color**
- 00= Black
- 02= Red
- 04= Yellow
- 05= Green
- 06= Blue
- 07= Purple
- Length in Inches (cm)**
- 24 (61)
- 36 (92)
- 48 (122)
- 60 (153)
- 72 (184)

Our easy-to-use Ordering Codes let you order the exact patching system you need. As shown in the chart below, simply choose the option you want for each specification.

**B 96 D C – FN S S S /E3 M 2OU 12 B**

- Jack Type**  
B = Bantam (TT)
- Depth**  
12 = 12" Deep Chassis    5 = 5" Deep Chassis  
7 = 7" Deep Chassis
- Designation Strips**  
2OU = 2 Designation Strips Over/Under
- Spacing**  
M = Mono Spacing
- Rear Interface**  
E3 = 3 Pin                    E56 = 56 Pin  
E90 = 90 Pin                D25 = Female 25 Pin
- Panel Height**  
S = 1RU
- Grounding**  
S = Switched  
B = Bussed  
I = Isolated
- Normaling**  
S = S Series (internally programmable)
- Type of Normaling**  
FN = Full-Normal  
HN = Half-Normal  
NN = Non-Normal
- Style**  
C = Chassis
- Wiring**  
D = Digital compatible wiring
- Quantity of Patch Ports**  
96 = 2x48
- Color Choice**  
B = Black  
G = Gray

Mating connectors, contacts and normals (where applicable) are included with standard rear interface audio patchbays. Lacing bars are included with all audio patchbays.



- **Classic, Non-Programmable Audio Bantam (TT) Patchbay**
- **Available with more options than any audio patchbay, including rear interface, normalizing, grounding, jack spacing, panel color, chassis depth and rack-unit height**
- **High-density 2 x 48 jack configuration; 1, 1.5 or 2 RU size**
- **Rear interface options include E-3, E56, E-90, ID (punchdown) and D25**

Our 961 Series features our classic, non-programmable audio patchbays. With a jack configuration of 2 x 48, the 961 Series comes with the most options of any audio patchbay, including rear interface, normalizing, grounding, jack spacing, panel color, chassis depth and rack-unit height.

All Bittree audio patchbays bring you enhanced studio versatility and instant signal re-routing, and are perfect for master control and central switching I/O, audio console I/O, recording device I/O, and audio routing switcher bypass and input rerouting.

Our audio patchbays are built to AES/EBU specifications, and are internally wired with low-capacitance, shielded, 110-ohm twisted pairs. The low-capacitance characteristics make them ideal for both digital as well as analog applications.

- Available in 1, 1.5 or 2 rack units (RU), in fully enclosed 7" or 12" deep chassis
- Normals can be set to full-normal, half-normal or non-normal; Grounding can be set to switched, bussed, isolated or looped
- Normals can be looped internally or brought out to the rear interface
- Rear interface options include E-3, E-56, E-90, ID (Punchdown), D25 and Centronics 50-pin
- Gold-plated contacts used in E3 and E90 rear interface
- Jacks rated to 30,000 minimum insertion cycles
- Precision-stamped reinforced steel jack frame
- Copper-nickel-silver alloy leaf springs with gold-plated cross bar switching contacts and nickel-plated sleeve bushings
- Wired with low-capacitance, AES/EBU-rated shielded, twisted pair
- Panels made from 3/16" solid aluminum with a durable powder-coat finish
- Large user-friendly designation strips
- Mating connectors, contacts and normals (where applicable) are included with all standard rear interfaces

Think of our 961 Series of Audio Patchbays as our “Custom” series – without the cost and delays of a typical custom patchbay. This series allows you to build virtually any patchbay in virtually any configuration. On the following pages are just some of the configurations available. Only E-3 rear interfaces are listed here, but we also offer E-56, E-90, ID (punchdown), D25 and Centronic 50-pin rear interfaces. If you don’t see what you’re looking for, please call your Bittree Sales Consultant.

DESCRIPTION	PRODUCT NUMBER
<b>E-3, 1 x 48, 1 RU, Black</b>	
E3, 1x48, 1 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNNBS/E3 M1007B
E3, 1x48, 1 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNNIS/E3 M1007B
E3, 1x48, 1 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNNBS/E3 M10012B
E3, 1x48, 1 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNNIS/E3 M10012B
<b>E-3, 2 x 48, 1 RU, Black, 7", Mono Spacing, Over/Under Strips</b>	
See the 968 Series for patchbays that meet these specifications.	
<b>E-3, 2 x 48, 1 RU, Black, 12", Mono Spacing, Over/Under Strips</b>	
See the 968 Series for patchbays that meet these specifications.	
<b>E-3, 2 x 48, 1 RU, Black, 7", Stereo Spacing, Over/Under Strips</b>	
E3, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNLBS/E3 S2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNLIS/E3 S2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNLLS/E3 S2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNLSS/E3 S2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNLBS/E3 S2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNLIS/E3 S2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNLLS/E3 S2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNLSS/E3 S2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Non-Normal, Bussed	B96DC-NNNBS/E3 S2OU7B
E3, 2x48, 1 RU, Black, 7" Chassis, Non-Normal, Isolated	B96DC-NNNIS/E3 S2OU7B
<b>E-3, 2 x 48, 1 RU, Black, 12", Stereo Spacing, Over/Under Strips</b>	
E3, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNLBS/E3 S2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNLIS/E3 S2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNLLS/E3 S2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNLSS/E3 S2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNLBS/E3 S2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNLIS/E3 S2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNLLS/E3 S2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNLSS/E3 S2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Non-Normal, Bussed	B96DC-NNNBS/E3 S2OU12B
E3, 2x48, 1 RU, Black, 12" Chassis, Non-Normal, Isolated	B96DC-NNNIS/E3 S2OU12B
<b>E-3, 2 x 48, 1 RU, Black, 7", Mono Spacing, Over/Over Strips</b>	
E3, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNLBS/E3 M2007B
E3, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNLIS/E3 M2007B
E3, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNLLS/E3 M2007B
E3, 2x48, 1 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNLSS/E3 M2007B
E3, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNLBS/E3 M2007B
E3, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNLIS/E3 M2007B
E3, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNLLS/E3 M2007B
E3, 2x48, 1 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNLSS/E3 M2007B
E3, 2x48, 1 RU, Black, 7" Chassis, Non-Normal, Bussed	B96DC-NNNBS/E3 M2007B
E3, 2x48, 1 RU, Black, 7" Chassis, Non-Normal, Isolated	B96DC-NNNIS/E3 M2007B



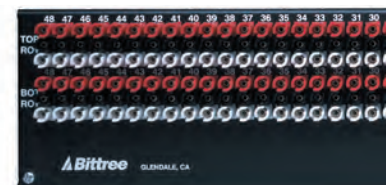
DESCRIPTION	PRODUCT NUMBER
<b>E-3, 2 x 48, 1 RU, Black, 12", Mono Spacing, Over/Over Strips</b>	
E3, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNLBS/E3 M20012B
E3, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNLIS/E3 M20012B
E3, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNLLS/E3 M20012B
E3, 2x48, 1 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNLSS/E3 M20012B
E3, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNLBS/E3 M20012B
E3, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNLIS/E3 M20012B
E3, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNLLS/E3 M20012B
E3, 2x48, 1 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNLSS/E3 M20012B
E3, 2x48, 1 RU, Black, 12" Chassis, Non-Normal, Bussed	B96DC-NNNBS/E3 M20012B
E3, 2x48, 1 RU, Black, 12" Chassis, Non-Normal, Isolated	B96DC-NNNIS/E3 M20012B
<b>E-3, 2 x 48, 1.5 RU, Black, 7", Mono Spacing, Over/Under Strips</b>	
See the 969-A Series for patchbays that meet these specifications.	
<b>E-3, 2 x 48, 1.5 RU, Black, 12", Mono Spacing, Over/Under Strips</b>	
See the 969-A Series for patchbays that meet these specifications.	
<b>E-3, 2 x 48, 1.5 RU, Black, 7", Stereo Spacing, Over/Under Strips</b>	
E3, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNLBH/E3 S20U7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNLIH/E3 S20U7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNLLH/E3 S20U7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNLSH/E3 S20U7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNLBH/E3 S20U7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNLIH/E3 S20U7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNLLH/E3 S20U7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNLSH/E3 S20U7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Non-Normal, Bussed	B96DC-NNNBH/E3 S20U7B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Non-Normal, Isolated	B96DC-NNNIH/E3 S20U7B
<b>E-3, 2 x 48, 1.5 RU, Black, 12", Stereo Spacing, Over/Under Strips</b>	
E3, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNLBH/E3 S20U12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNLIH/E3 S20U12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNLLH/E3 S20U12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNLSH/E3 S20U12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNLBH/E3 S20U12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNLIH/E3 S20U12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNLLH/E3 S20U12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNLSH/E3 S20U12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Non-Normal, Bussed	B96DC-NNNBH/E3 S20U12B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Non-Normal, Isolated	B96DC-NNNIH/E3 S20U12B
<b>E-3, 2 x 48, 1.5 RU, Black, 7", Mono Spacing, Over/Over Strips</b>	
E3, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNLBH/E3 M2007B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNLIH/E3 M2007B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNLLH/E3 M2007B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNLSH/E3 M2007B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNLBH/E3 M2007B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNLIH/E3 M2007B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNLLH/E3 M2007B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNLSH/E3 M2007B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Non-Normal, Bussed	B96DC-NNNBH/E3 M2007B
E3, 2x48, 1.5 RU, Black, 7" Chassis, Non-Normal, Isolated	B96DC-NNNIH/E3 M2007B
<b>E-3, 2 x 48, 1.5 RU, Black, 12", Mono Spacing, Over/Over Strips</b>	
E3, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNLBH/E3 M20012B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNLIH/E3 M20012B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNLLH/E3 M20012B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNLSH/E3 M20012B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNLBH/E3 M20012B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNLIH/E3 M20012B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNLLH/E3 M20012B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNLSH/E3 M20012B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Non-Normal, Bussed	B96DC-NNNBH/E3 M20012B
E3, 2x48, 1.5 RU, Black, 12" Chassis, Non-Normal, Isolated	B96DC-NNNIH/E3 M20012B

DESCRIPTION	PRODUCT NUMBER
<b>E-3, 2 x 48, 2 RU, Black, 7", Mono Spacing, Over/Under Strips</b>	
See the 969-A Series for patchbays that meet these specifications.	
<b>E-3, 2 x 48, 2 RU, Black, 12", Mono Spacing, Over/Under Strips</b>	
See the 969-A Series for patchbays that meet these specifications.	
<b>E-3, 2 x 48, 2 RU, Black, 7", Stereo Spacing, Over/Under Strips</b>	
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNLBT/E3 S2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNLIT/E3 S2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNLLT/E3 S2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNLST/E3 S2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNLBT/E3 S2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNLIT/E3 S2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNLLT/E3 S2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNLST/E3 S2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Non-Normal, Bussed	B96DC-NNNBT/E3 S2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Non-Normal, Isolated	B96DC-NNNIT/E3 S2OU7B
<b>E-3, 2 x 48, 2 RU, Black, 12", Stereo Spacing, Over/Under Strips</b>	
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNLBT/E3 S2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNLIT/E3 S2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNLLT/E3 S2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNLST/E3 S2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNLBT/E3 S2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNLIT/E3 S2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNLLT/E3 S2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNLST/E3 S2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Non-Normal, Bussed	B96DC-NNNBT/E3 S2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Non-Normal, Isolated	B96DC-NNNIT/E3 S2OU12B
<b>E-3, 2 x 48, 2 RU, Black, 7", Mono Spacing, Over/Over Strips</b>	
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNLBT/E3 M2OO7B
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNLIT/E3 M2OO7B
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNLLT/E3 M2OO7B
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNLST/E3 M2OO7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNLBT/E3 M2OO7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNLIT/E3 M2OO7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNLLT/E3 M2OO7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNLST/E3 M2OO7B
E3, 2x48, 2 RU, Black, 7" Chassis, Non-Normal, Bussed	B96DC-NNNBT/E3 M2OO7B
E3, 2x48, 2 RU, Black, 7" Chassis, Non-Normal, Isolated	B96DC-NNNIT/E3 M2OO7B
<b>E-3, 2 x 48, 2 RU, Black, 12", Mono Spacing, Over/Over Strips</b>	
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNLBT/E3 M2OO12B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNLIT/E3 M2OO12B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNLLT/E3 M2OO12B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNLST/E3 M2OO12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNLBT/E3 M2OO12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNLIT/E3 M2OO12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNLLT/E3 M2OO12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNLST/E3 M2OO12B
E3, 2x48, 2 RU, Black, 12" Chassis, Non-Normal, Bussed	B96DC-NNNBT/E3 M2OO12B
E3, 2x48, 2 RU, Black, 12" Chassis, Non-Normal, Isolated	B96DC-NNNIT/E3 M2OO12B
<b>E-3, 2 x 48, 2 RU, Black, 7", Mono Spacing, Over/Under Strips, Normals Out</b>	
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNOBT/E3 M2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNOIT/E3 M2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNOLT/E3 M2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNOST/E3 M2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNOBT/E3 M2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNOIT/E3 M2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNOLT/E3 M2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNOST/E3 M2OU7B

DESCRIPTION	PRODUCT NUMBER
<b>E-3, 2 x 48, 2 RU, Black, 12", Mono Spacing, Over/Under Strips, Normals Out</b>	
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNOBT/E3 M2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNOIT/E3 M2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNOLT/E3 M2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNOST/E3 M2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNOBT/E3 M2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNOIT/E3 M2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNOLT/E3 M2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNOST/E3 M2OU12B
<b>E-3, 2 x 48, 2 RU, Black, 7", Stereo Spacing, Over/Under Strips, Normals Out</b>	
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNOBT/E3 S2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNOIT/E3 S2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNOLT/E3 S2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNOST/E3 S2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNOBT/E3 S2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNOIT/E3 S2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNOLT/E3 S2OU7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNOST/E3 S2OU7B
<b>E-3, 2 x 48, 2 RU, Black, 12", Stereo Spacing, Over/Under Strips, Normals Out</b>	
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNOBT/E3 S2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNOIT/E3 S2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNOLT/E3 S2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNOST/E3 S2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNOBT/E3 S2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNOIT/E3 S2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNOLT/E3 S2OU12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNOST/E3 S2OU12B
<b>E-3, 2 x 48, 2 RU, Black, 7", Mono Spacing, Over/Over Strips, Normals Out</b>	
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B96DC-FNOBT/E3 M2OO7B
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B96DC-FNOIT/E3 M2OO7B
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B96DC-FNOLT/E3 M2OO7B
E3, 2x48, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B96DC-FNOST/E3 M2OO7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B96DC-HNOBT/E3 M2OO7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B96DC-HNOIT/E3 M2OO7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B96DC-HNOLT/E3 M2OO7B
E3, 2x48, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B96DC-HNOST/E3 M2OO7B
<b>E-3, 2 x 48, 2 RU, Black, 12", Mono Spacing, Over/Over Strips, Normals Out</b>	
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B96DC-FNOBT/E3 M2OO12B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B96DC-FNOIT/E3 M2OO12B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B96DC-FNOLT/E3 M2OO12B
E3, 2x48, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B96DC-FNOST/E3 M2OO12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B96DC-HNOBT/E3 M2OO12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B96DC-HNOIT/E3 M2OO12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B96DC-HNOLT/E3 M2OO12B
E3, 2x48, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B96DC-HNOST/E3 M2OO12B

### REAR INTERFACE OPTIONS

The 961 Series comes with six rear interface options – E-3, E-56, E-90, ID (punchdown), D25 and Centronics 50-pin. Full views of E3, E90 and ID (punchdown) rear interfaces can be seen throughout this catalog; full views of the E-56, D25 and Centronics 50-Pin rear interfaces can be seen at [Bittree.com](http://Bittree.com).



For fast, easy ordering visit [bittree.com](http://bittree.com)



**AUDIO BANTAM (TT)**

**BPC 24 00 – 110**

**Color**

- 00= Black
- 02= Red
- 04= Yellow
- 05= Green
- 06= Blue
- 07= Purple

**Length in Inches (cm)**

- 24 (61)
- 36 (92)
- 48 (122)
- 60 (153)
- 72 (184)

**DUAL BANTAM (TT)**

**DPC 24 00**

**Color**

- 00= Black
- 02= Red
- 04= Yellow
- 05= Green
- 06= Blue
- 07= Purple

**Length in Inches (cm)**

- 24 (61)
- 36 (92)
- 48 (122)
- 60 (153)
- 72 (184)



**BPC PATCH CORDS**



**DPC PATCH CORDS**

Our easy-to-use Ordering Codes let you order the exact patching system you need. As shown in the chart below, simply choose the option you want for each specification.

**B 96 D C – FN L I T /E3 M 2OU 12 B**

**Jack Type**

B = Bantam (TT)

**Depth**

12 = 12" Deep Chassis    7 = 7" Deep Chassis  
48 = 48" Long Harness

**Designation Strips**

2OU = 2 Designation Strips Over/Under  
200 = 2 Designation Strips Over/Over

**Spacing**

M = Mono Spacing    S = Stereo Spacing

**Rear Interface**

E3 = 3 Pin    E90 = 90 Pin    ID = Punchdown  
D25 = Female 25 Pin    E56 = 56 Pin  
C50 = Centronics 50 Pin

**Panel Height**

S = 1RU    H = 1.5RU    T = 2RU

**Grounding**

B = Bussed    I = Isolated  
L = Looped    S = Switched

**Normaling**

N = No Normals    L = Normals looped internally  
O = Normals brought out to the rear

**Type of Normaling**

FN = Full-Normal    HN = Half-Normal  
NN = Non-Normal

**Style**

C = Chassis    H = Harness

**Wiring**

D = Digital compatible wiring

**Quantity of Patch Ports**

64 = 2x32    96 = 2x48

**Color Choice**

B = Black  
G = Gray

Mating connectors, contacts and normals (where applicable) are included with standard rear interface audio patchbays. Lacing bars are included with all audio patchbays.

Normals out patchbays bring the normals to the rear interface so that if desired the user may de-normal a circuit by removing a jumper. The 3-pin rear interface always brings the shield to the rear interface. To loop the ground use a three-wire jumper (Normal 3-E); to isolate the ground use a two-wire jumper (Normal 2-E). Note: E90 normals out models do not bring the ground to the normals out connector.



# AUDIO 1/4"



## Overview

Bittree offers two formats of audio patchbays: Long Frame (1/4"), described below, and Bantam (TT), described on page 20. Long-Frame patchbays are often considered easier to work with due to their spacious 2 x 24 jack configuration.

### CHOOSING THE RIGHT AUDIO LONG-FRAME PATCHBAY

#### **489 Series, Programmable, 2 x 24**

Our Programmable patchbay allows you to change normaling and grounding for individual circuits simply by changing the shunt arrangement under the designation strips. Available in 1.5 and 2 RU enclosed chassis.

#### **489-S Series, Programmable, 2 x 24**

Includes the same features as the 489 Series above, but also allows you to program switched grounds – in addition to bussed, isolated and looped grounds as with the original 489 series.

#### **488 Series, Internally Programmable, 2 x 24**

Comes with the same programming capability as the 489 Series, but the programming is done internally so it can fit into a 1 RU enclosed chassis.

#### **481 Series, Classic, 2 x 24**

Our original Bantam audio patchbay, featuring our most extensive selection of options available, including normals out, grounding, and other internal hard-wiring options, rear panel configurations, stereo/mono spacing, panel color, rack-unit height, and harness configurations. Non-programmable.

#### **521 Series, Classic, 2 x 26**

Includes the same extensive selections of available options as the 481 Series above, but in a slightly more condensed 2 x 26 format.





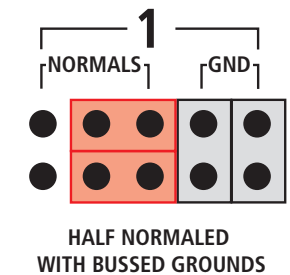
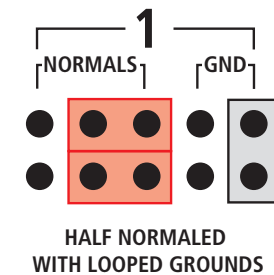
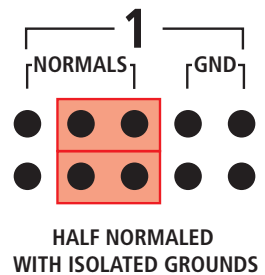
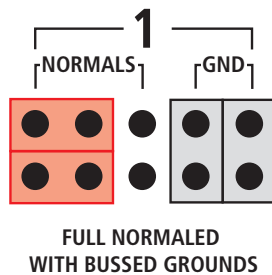
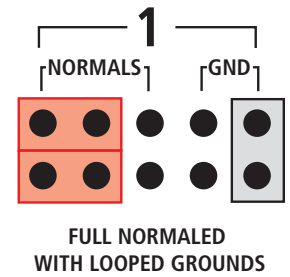
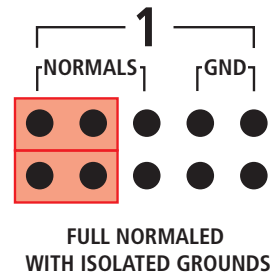
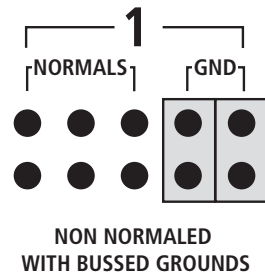
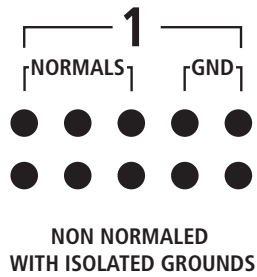
- **Programmable Audio Long-Frame (1/4") Patchbay**
- **Normals and Grounds can be easily reprogrammed by the end-user**
- **Spacious 2 x 24 jack configuration; 1.5 or 2 RU size**
- **Rear interface options include E-3, E-90, ID (punchdown) and D25**

Our 489 Series features our innovative Programmable audio patchbays in a 2 x 24 1.5 or 2 RU size.

Programmable patchbays allow users to quickly and easily change the normals and grounding of individual circuits. Normals can be changed to full-normal, half-normal or non-normal. Grounding can be changed to bussed, isolated or looped (for switched grounds, consider the 489-S Series).

Because it's programmable, the 489 Series can serve as the foundation for virtually any new, reconfigured or legacy installation. The end result is a patchbay that allows integrators and installers to quickly re-configure patching systems, accommodate customer change-orders, and speed service-calls.

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Normals and Grounding for individual circuits can be easily changed by the end-user</li> <li>• Normals can be programmed to full-normal, half-normal or non-normal; Grounding can be programmed to bussed, isolated or looped</li> <li>• Rear interface options include E-3, E-90, ID (punchdown) and D25</li> <li>• Gold-plated contacts used in E3 and E90 rear interface</li> <li>• Jacks rated to 30,000 minimum insertion cycles</li> <li>• Precision-stamped reinforced steel jack frame</li> </ul> | <ul style="list-style-type: none"> <li>• Copper-nickel-silver alloy leaf springs with gold-plated cross bar switching contacts and nickel-plated sleeve bushings</li> <li>• Wired with low-capacitance, AES/EBU-rated shielded, twisted pair</li> <li>• Panels made from 3/16" solid aluminum with a durable powder-coat finish</li> <li>• Large user-friendly designation strips</li> <li>• Mating connectors, contacts and normals (where applicable) are included with all standard rear interfaces</li> </ul> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



**How to Identify a 489 Series Programmable Patchbay:**

489 Series programmable patchbays can be identified by the “Programmable Icon” in the upper left corner of the patchbay.

**How to Change the Programming for a Circuit:**

1. Remove the top designation strip, as shown in the photo on the right
2. Find your desired configuration in the diagram above.
3. Arrange the programming shunts to match the appropriate diagram.

Note: Each circuit can be programmed independently.

4. Ample shunts are provided with every programmable patchbay. Red shunts are placed horizontally and are used for normalizing options. White shunts (shown as light gray above) are placed vertically and are used for grounding options.
5. The circuits are numbered 1–24 and correspond to vertical jack pairs reading left to right.
7. Replace the designation strip.



DESCRIPTION	PRODUCT NUMBER
<b>E-3, 1.5 RU, Black, 7" Chassis</b>	
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNPBH/E3 M2OU7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNPIH/E3 M2OU7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNPLH/E3 M2OU7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNPBH/E3 M2OU7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNPIH/E3 M2OU7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNPLH/E3 M2OU7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNPBH/E3 M2OU7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNPIH/E3 M2OU7L
<b>E-3, 1.5 RU, Black, 12" Chassis</b>	
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNPBH/E3 M2OU12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNPIH/E3 M2OU12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNPLH/E3 M2OU12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNPBH/E3 M2OU12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNPIH/E3 M2OU12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNPLH/E3 M2OU12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNPBH/E3 M2OU12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNPIH/E3 M2OU12L
<b>E-3, 2 RU, Black, 7" Chassis</b>	
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNPBT/E3 M2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNPIT/E3 M2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNPLT/E3 M2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNPBT/E3 M2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNPIT/E3 M2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNPLT/E3 M2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNPBT/E3 M2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNPIT/E3 M2OU7L
<b>E-3, 2 RU, Black, 12" Chassis</b>	
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNPBT/E3 M2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNPIT/E3 M2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNPLT/E3 M2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNPBT/E3 M2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNPIT/E3 M2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNPLT/E3 M2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNPBT/E3 M2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNPIT/E3 M2OU12L
<b>E-90, 1.5 RU, Black, 7" Chassis</b>	
E90, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNPBH/E90 M2OU7L
E90, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNPIH/E90 M2OU7L
E90, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNPLH/E90 M2OU7L
E90, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNPBH/E90 M2OU7L
E90, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNPIH/E90 M2OU7L
E90, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNPLH/E90 M2OU7L
E90, 2x24, 1.5 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNPBH/E90 M2OU7L
E90, 2x24, 1.5 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNPIH/E90 M2OU7L
<b>E-90, 1.5 RU, Black, 12" Chassis</b>	
E90, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNPBH/E90 M2OU12L
E90, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNPIH/E90 M2OU12L
E90, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNPLH/E90 M2OU12L
E90, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNPBH/E90 M2OU12L
E90, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNPIH/E90 M2OU12L
E90, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNPLH/E90 M2OU12L
E90, 2x24, 1.5 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNPBH/E90 M2OU12L
E90, 2x24, 1.5 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNPIH/E90 M2OU12L

DESCRIPTION	PRODUCT NUMBER
<b>E-90, 2 RU, Black, 7" Chassis</b>	
E90, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNPBT/E90 M2OU7L
E90, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNPIT/E90 M2OU7L
E90, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNPLT/E90 M2OU7L
E90, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNPBT/E90 M2OU7L
E90, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNPIT/E90 M2OU7L
E90, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNPLT/E90 M2OU7L
E90, 2x24, 2 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNPBT/E90 M2OU7L
E90, 2x24, 2 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNPIT/E90 M2OU7L
<b>E-90, 2 RU, Black, 12" Chassis</b>	
E90, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNPBT/E90 M2OU12L
E90, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNPIT/E90 M2OU12L
E90, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNPLT/E90 M2OU12L
E90, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNPBT/E90 M2OU12L
E90, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNPIT/E90 M2OU12L
E90, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNPLT/E90 M2OU12L
E90, 2x24, 2 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNPBT/E90 M2OU12L
E90, 2x24, 2 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNPIT/E90 M2OU12L
<b>ID, 1.5 RU, Black, 7" Chassis</b>	
ID, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNPBH/ID M2OU7L
ID, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNPIH/ID M2OU7L
ID, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNPLH/ID M2OU7L
ID, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNPBH/ID M2OU7L
ID, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNPIH/ID M2OU7L
ID, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNPLH/ID M2OU7L
ID, 2x24, 1.5 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNPBH/ID M2OU7L
ID, 2x24, 1.5 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNPIH/ID M2OU7L
<b>ID, 1.5 RU, Black, 12" Chassis</b>	
ID, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNPBH/ID M2OU12L
ID, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNPIH/ID M2OU12L
ID, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNPLH/ID M2OU12L
ID, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNPBH/ID M2OU12L
ID, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNPIH/ID M2OU12L
ID, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNPLH/ID M2OU12L
ID, 2x24, 1.5 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNPBH/ID M2OU12L
ID, 2x24, 1.5 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNPIH/ID M2OU12L
<b>ID, 2 RU, Black, 7" Chassis</b>	
ID, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNPBT/ID M2OU7L
ID, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNPIT/ID M2OU7L
ID, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNPLT/ID M2OU7L
ID, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNPBT/ID M2OU7L
ID, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNPIT/ID M2OU7L
ID, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNPLT/ID M2OU7L
ID, 2x24, 2 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNPBT/ID M2OU7L
ID, 2x24, 2 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNPIT/ID M2OU7L
<b>ID, 2 RU, Black, 12" Chassis</b>	
ID, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNPBT/ID M2OU12L
ID, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNPIT/ID M2OU12L
ID, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNPLT/ID M2OU12L
ID, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNPBT/ID M2OU12L
ID, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNPIT/ID M2OU12L
ID, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNPLT/ID M2OU12L
ID, 2x24, 2 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNPBT/ID M2OU12L
ID, 2x24, 2 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNPIT/ID M2OU12L

HB VIDEO  
E-SERIES VIDEO  
COMP. VIDEO  
AES AUDIO  
AUDIO TT  
AUDIO 1/4"  
RS-422 ACTIVE  
RS-422 PROG.  
INTEGRATED  
ACCESSORIES

For fast, easy ordering visit [bittree.com](http://bittree.com)



LPC PATCH CORDS

AUDIO LONG FRAME (1/4")

LPC 24 00 – 110

- Color**
- 00= Black
- 02= Red
- 04= Yellow
- 05= Green
- 06= Blue
- 07= Purple
- Length in Inches (cm)**
- 24 (61)
- 36 (92)
- 48 (122)
- 60 (153)
- 72 (184)

Our easy-to-use Ordering Codes let you order the exact patching system you need. As shown in the chart below, simply choose the option you want for each specification.

**B 48 D C – FN P B T /E3 M 20U 12 L**

- Jack Type**  
L = Long Frame (1/4")
- Depth**  
12 = 12" Deep Chassis  
7 = 7" Deep Chassis
- Designation Strips**  
20U = 2 Designation Strips Over/Under
- Spacing**  
M = Mono Spacing
- Rear Interface**  
E3 = 3 Pin      D25 = Female 25 Pin  
E90 = 90 Pin    ID = Punchdown
- Panel Height**  
H = 1.5RU    T = 2RU
- Grounding**  
B = Bussed  
I = Isolated  
L = Looped
- Normaling**  
P = Programmable
- Type of Normaling**  
FN = Full-Normal  
HN = Half-Normal  
NN = Non-Normal
- Style**  
C = Chassis
- Wiring**  
D = Digital compatible wiring
- Quantity of Patch Ports**  
48 = 2x24
- Color Choice**  
B = Black  
G = Gray

Mating connectors, contacts and normals (where applicable) are included with standard rear interface audio patchbays. Lacing bars are included with all audio patchbays.





- **Programmable Audio Long-Frame (1/4") Patchbay**
- **Normals and Grounds can be easily reprogrammed by the end-user**
- **Allows Switched Grounds – for a more stable signal structure**
- **Spacious 2 x 24 jack configuration; 1.5 or 2 RU size**
- **Rear interface options include E-3, E-90, ID (punchdown) and D25**

Our 489-S Series features our innovative Programmable audio patchbays in a 2 x 24 1.5 or 2 RU size, with the added capability of programming switched grounds.

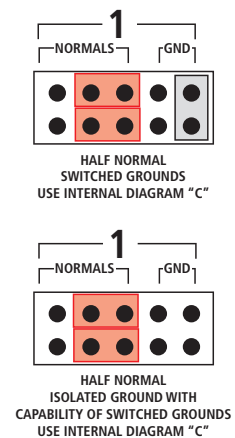
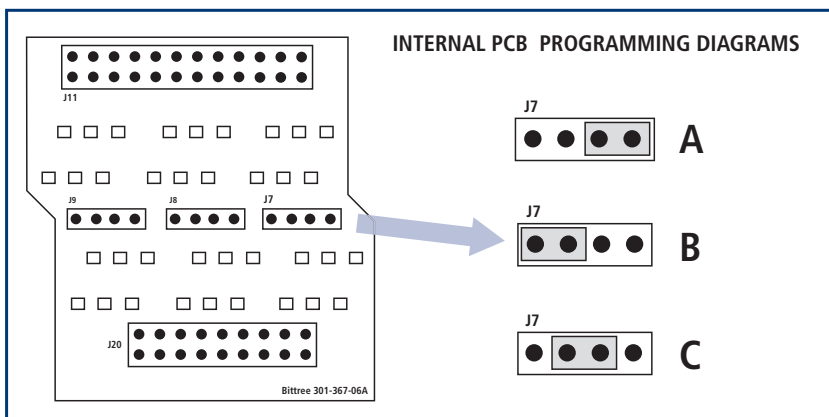
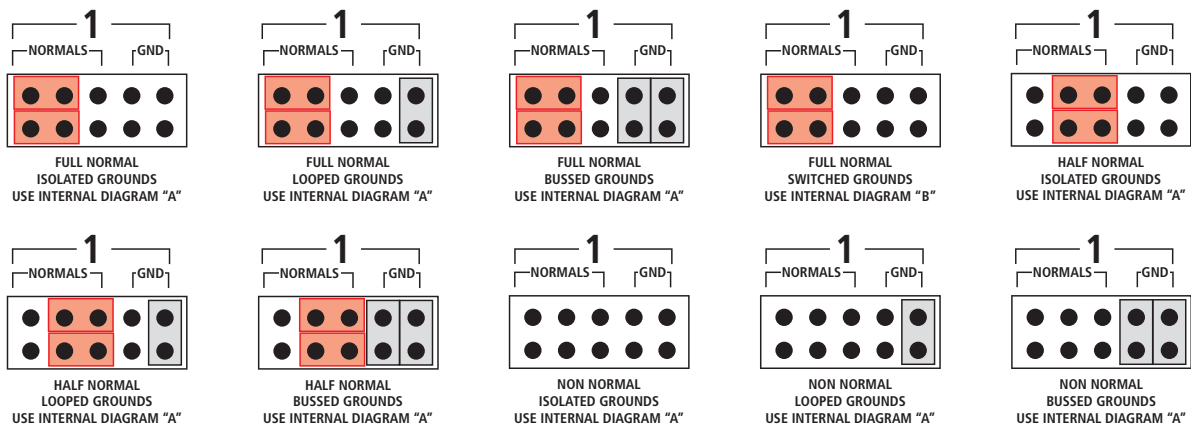
Switched grounds can help eliminate hard-to-find ground loops, and because it provides a more stable signal grounding structure, it's ideal for systems with audio signals coming from numerous locations.

The 489-S programmable patchbay allow users to quickly and easily change the normals and grounding of individual circuits. Normals can be changed to full-normal, half-normal or non-normal. Grounding can be changed to switched, bussed, isolated or looped.

Because it's programmable, the 489-S Series can serve as the foundation for virtually any new, reconfigured or legacy installation. The end result is a patchbay that allows integrators and installers to quickly re-configure patching systems, accommodate customer change-orders, and speed service-calls.

- Normals and Grounding for individual circuits can be easily changed by the end-user
- Normals can be programmed to full-normal, half-normal or non-normal; Grounding can be programmed to switched, bussed, isolated or looped
- Rear interface options include E-3, E-90, ID (punchdown) and D25
- Gold-plated contacts used in E3 and E90 rear interface
- Jacks rated to 30,000 minimum insertion cycles
- Precision-stamped reinforced steel jack frame
- Copper-nickel-silver alloy leaf springs with gold-plated cross bar switching contacts and nickel-plated sleeve bushings
- Wired with low-capacitance, AES/EBU-rated shielded, twisted pair
- Panels made from 3/16" solid aluminum with a durable powder-coat finish
- Large user-friendly designation strips
- Mating connectors, contacts and normals (where applicable) are included with all standard rear interfaces

## FRONT PORT EXTERNAL PROGRAMMING (under designation strips)



### How to Identify a 489-S Series Programmable Patchbay:

489-S Series programmable patchbays can be identified by the “Programmable Icon” in the upper left corner of the patchbay.

### How to Change the Programming for a Circuit:

1. Remove the top designation strip.
2. Find your desired configuration in the diagram above.
3. Arrange the programming shunts to match the appropriate diagram. Note: Each circuit can be programmed independently.
4. Ample shunts are provided with every patchbay. Red shunts are placed horizontally and are used for normalizing. White shunts (shown as light gray above) are placed vertically and are used for grounding.
5. The circuits are numbered 1–24 and correspond to vertical jack pairs reading left to right.
6. For the internal programming, unscrew the screws along the top edges and take off the patchbay dust cover. Locate the Internal PCB Boards inside, which are right behind the back of the jacks (for a better view, turn the rear of the patchbay toward you). There are eight PCB Boards; each one holds three circuits.
7. Depending on the Normal/Grounding configuration you want for each circuit, choose Internal Programming Diagram A, B or C from the blue box above and program accordingly, using the same red and white shunts.
8. Replace the patchbay dust cover and designation strips.



489-S Series Programmable patchbay shown with designation strips removed, exposing red and white external programming shunts on the top row.

DESCRIPTION	PRODUCT NUMBER
<p><b>E-3, 1.5 RU, Black, 7" Chassis</b>                      E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched                      E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched                      E3, 2x24, 1.5 RU, Black, 7" Chassis, Non-Normal, Switched</p>	<p>B48DC-FNSSH/E3 M2OU7L                      B48DC-HNSSH/E3 M2OU7L                      B48DC-NNSSH/E3 M2OU7L</p>
<p><b>E-3, 1.5 RU, Black, 12" Chassis</b>                      E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched                      E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched                      E3, 2x24, 1.5 RU, Black, 12" Chassis, Non-Normal, Switched</p>	<p>B48DC-FNSSH/E3 M2OU12L                      B48DC-HNSSH/E3 M2OU12L                      B48DC-NNSSH/E3 M2OU12L</p>
<p><b>E-3, 2 RU, Black, 7" Chassis</b>                      E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Switched                      E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Switched                      E3, 2x24, 2 RU, Black, 7" Chassis, Non-Normal, Switched</p>	<p>B48DC-FNSST/E3 M2OU7L                      B48DC-HNSST/E3 M2OU7L                      B48DC-NNSST/E3 M2OU7L</p>
<p><b>E-3, 2 RU, Black, 12" Chassis</b>                      E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Switched                      E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Switched                      E3, 2x24, 2 RU, Black, 12" Chassis, Non-Normal, Switched</p>	<p>B48DC-FNSST/E3 M2OU12L                      B48DC-HNSST/E3 M2OU12L                      B48DC-NNSST/E3 M2OU12L</p>
<p><b>E-90, 1.5 RU, Black, 7" Chassis</b>                      E90, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched                      E90, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched                      E90, 2x24, 1.5 RU, Black, 7" Chassis, Non-Normal, Switched</p>	<p>B48DC-FNSSH/E90 M2OU7L                      B48DC-HNSSH/E90 M2OU7L                      B48DC-NNSSH/E90 M2OU7L</p>
<p><b>E-90, 1.5 RU, Black, 12" Chassis</b>                      E90, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched                      E90, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched                      E90, 2x24, 1.5 RU, Black, 12" Chassis, Non-Normal, Switched</p>	<p>B48DC-FNSSH/E90 M2OU12L                      B48DC-HNSSH/E90 M2OU12L                      B48DC-NNSSH/E90 M2OU12L</p>
<p><b>E-90, 2 RU, Black, 7" Chassis</b>                      E90, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Switched                      E90, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Switched                      E90, 2x24, 2 RU, Black, 7" Chassis, Non-Normal, Switched</p>	<p>B48DC-FNSST/E90 M2OU7L                      B48DC-HNSST/E90 M2OU7L                      B48DC-NNSST/E90 M2OU7L</p>
<p><b>E-90, 2 RU, Black, 12" Chassis</b>                      E90, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Switched                      E90, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Switched                      E90, 2x24, 2 RU, Black, 12" Chassis, Non-Normal, Switched</p>	<p>B48DC-FNSST/E90 M2OU12L                      B48DC-HNSST/E90 M2OU12L                      B48DC-NNSST/E90 M2OU12L</p>
<p><b>ID, 1.5 RU, Black, 7" Chassis</b>                      ID, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched                      ID, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched                      ID, 2x24, 1.5 RU, Black, 7" Chassis, Non-Normal, Switched</p>	<p>B48DC-FNSSH/ID M2OU7L                      B48DC-HNSSH/ID M2OU7L                      B48DC-NNSSH/ID M2OU7L</p>
<p><b>ID, 1.5 RU, Black, 12" Chassis</b>                      ID, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched                      ID, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched                      ID, 2x24, 1.5 RU, Black, 12" Chassis, Non-Normal, Switched</p>	<p>B48DC-FNSSH/ID M2OU12L                      B48DC-HNSSH/ID M2OU12L                      B48DC-NNSSH/ID M2OU12L</p>
<p><b>ID, 2 RU, Black, 7" Chassis</b>                      ID, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Switched                      ID, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Switched                      ID, 2x24, 2 RU, Black, 7" Chassis, Non-Normal, Switched</p>	<p>B48DC-FNSST/ID M2OU7L                      B48DC-HNSST/ID M2OU7L                      B48DC-NNSST/ID M2OU7L</p>
<p><b>ID, 2 RU, Black, 12" Chassis</b>                      ID, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Switched                      ID, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Switched                      ID, 2x24, 2 RU, Black, 12" Chassis, Non-Normal, Switched</p>	<p>B48DC-FNSST/ID M2OU12L                      B48DC-HNSST/ID M2OU12L                      B48DC-NNSST/ID M2OU12L</p>

HB VIDEO  
E-SERIES VIDEO  
COMP. VIDEO  
AES AUDIO  
AUDIO TT  
AUDIO 1/4"  
RS-422 ACTIVE  
RS-422 PROG.  
INTEGRATED  
ACCESSORIES

For fast, easy ordering visit [bittree.com](http://bittree.com)



LPC PATCH CORDS

**AUDIO LONG FRAME (1/4")**  
LPC 24 00 – 110

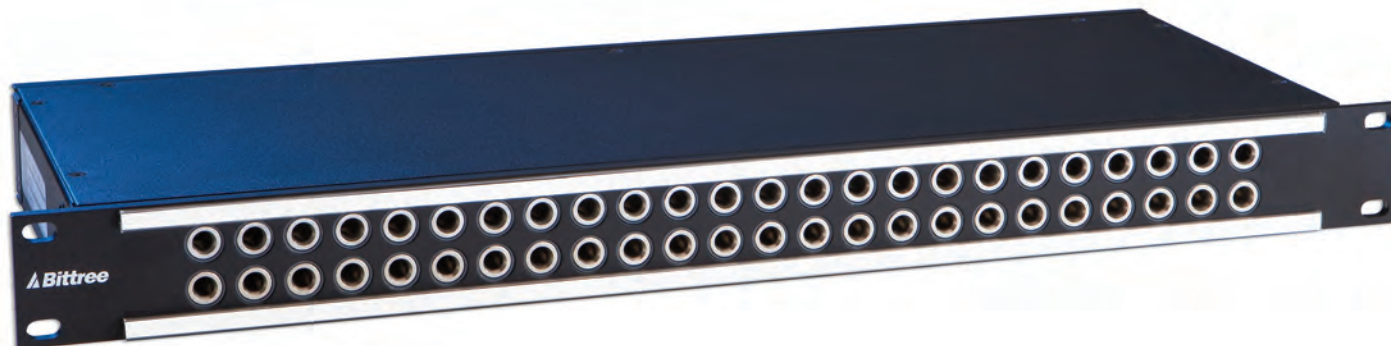
- Color**
- 00= Black
- 02= Red
- 04= Yellow
- 05= Green
- 06= Blue
- 07= Purple
- Length in Inches (cm)**
- 24 (61)
- 36 (92)
- 48 (122)
- 60 (153)
- 72 (184)

Our easy-to-use Ordering Codes let you order the exact patching system you need. As shown in the chart below, simply choose the option you want for each specification.

**B 48 D C – FN S S T /E3 M 20U 12 L**

- Jack Type**  
L = Long Frame (1/4")
- Depth**  
12 = 12" Deep Chassis  
7 = 7" Deep Chassis
- Designation Strips**  
20U = 2 Designation Strips Over/Under
- Spacing**  
M = Mono Spacing
- Rear Interface**  
E3 = 3 Pin      D25 = Female 25 Pin  
E90 = 90 Pin    ID = Punchdown
- Panel Height**  
H = 1.5RU    T = 2RU
- Grounding**  
S = Switched  
B = Bussed  
I = Isolated
- Normaling**  
S = S Series (programmable)
- Type of Normaling**  
FN = Full-Normal  
HN = Half-Normal  
NN = Non-Normal
- Style**  
C = Chassis
- Wiring**  
D = Digital compatible wiring
- Quantity of Patch Ports**  
48 = 2x24
- Color Choice**  
B = Black  
G = Gray

Mating connectors, contacts and normals (where applicable) are included with standard rear interface audio patchbays. Lacing bars are included with all audio patchbays.



- **Programmable Audio Long-Frame (1/4") Patchbay**
- **Normals and Grounds can be easily reprogrammed by the end-user**
- **Spacious 2 x 24 jack configuration; 1 RU size**
- **Small size is ideal for mobile production and other applications in tight quarters**
- **Rear interface options include E-3, E-90 and D25**

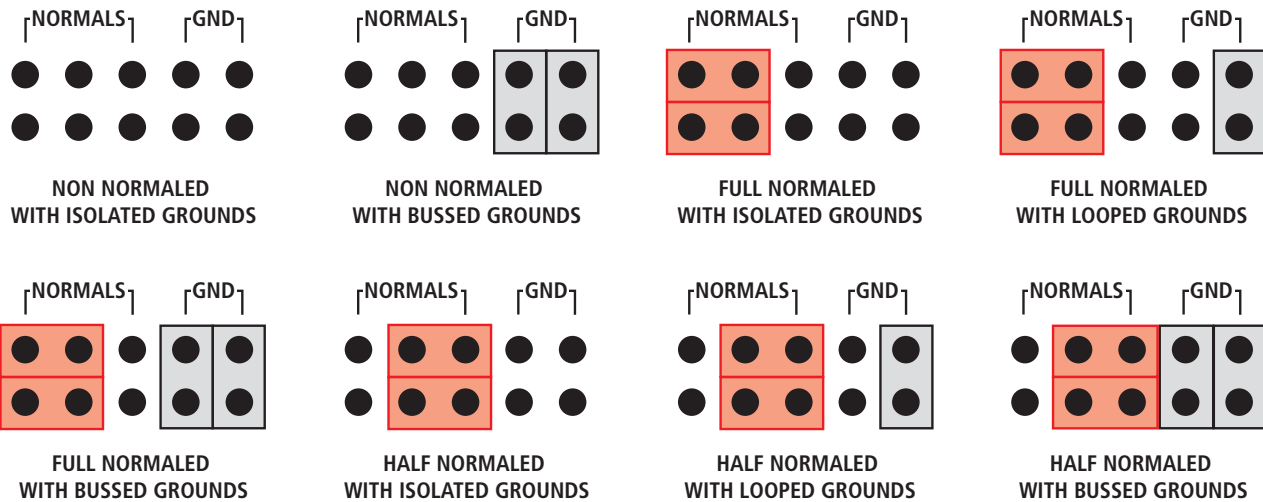
Our 488 Series features our innovative Programmable audio patchbays in a 2 x 24 1 RU size, making them ideal for mobile production and other applications in tight quarters.

Programmable patchbays allow users to quickly and easily change the normals and grounding of individual circuits. Normals can be changed to full-normal, half-normal or non-normal. Grounding can be changed to bussed, isolated or looped.

Because it's programmable, the 488 Series can serve as the foundation for virtually any new, reconfigured or legacy installation. The end result is a patchbay that allows integrators and installers to quickly re-configure patching systems, accommodate customer change-orders, and speed service-calls.

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Normals and Grounding for individual circuits can be easily changed by the end-user</li> <li>• Normals can be programmed to full-normal, half-normal or non-normal; Grounding can be programmed to bussed, isolated or looped</li> <li>• Rear interface options include E-3, E-90 and D25</li> <li>• Gold-plated contacts used in E3 and E90 rear interface</li> <li>• Jacks rated to 30,000 minimum insertion cycles</li> <li>• Precision-stamped reinforced steel jack frame</li> </ul> | <ul style="list-style-type: none"> <li>• Copper-nickel-silver alloy leaf springs with gold-plated cross bar switching contacts and nickel-plated sleeve bushings</li> <li>• Wired with low-capacitance, AES/EBU-rated shielded, twisted pair</li> <li>• Panels made from 3/16" solid aluminum with a durable powder-coat finish</li> <li>• Large user-friendly designation strips</li> <li>• Mating connectors, contacts and normals (where applicable) are included with all standard rear interfaces</li> </ul> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|





**How to Identify a 488 Series Programmable Patchbay:**

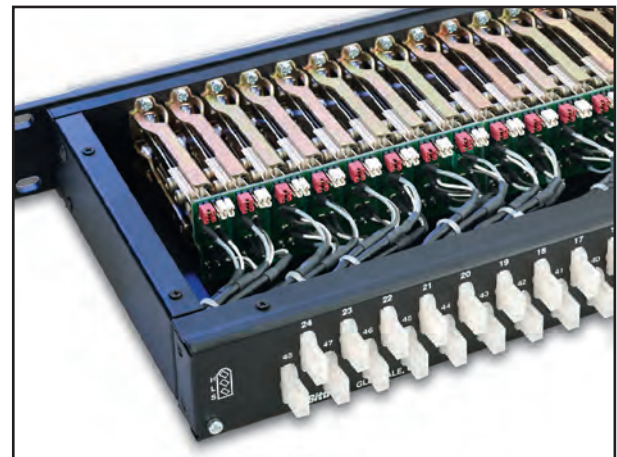
488 Series programmable patchbays can only be identified by removing the top dust cover and looking for the presence of red and white programming shunts inside.

**How to Change the Programming for a Circuit:**

1. Find your desired configuration in the diagram above.
2. Arrange the programming shunts to match the appropriate diagram.

Note: Each circuit can be programmed independently.

3. Ample shunts are provided with every programmable patchbay. Red shunts are placed horizontally and are used for normalizing options. White shunts (shown as light gray above) are placed vertically and are used for grounding options.
4. Replace the dust cover.



488 Series Programmable patchbay shown with dust cover removed, exposing red and white internal programming shunts.



**PROGRAMMING SHUNTS**

DESCRIPTION	PRODUCT NUMBER
<b>E-3, 2x24, 1 RU, Black, 7"</b>	
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNIBS/E3 M2OU7L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNIIS/E3 M2OU7L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNILS/E3 M2OU7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNIBS/E3 M2OU7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNIIS/E3 M2OU7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNILS/E3 M2OU7L
E3, 2x24, 1 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNIBS/E3 M2OU7L
E3, 2x24, 1 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNIIS/E3 M2OU7L
<b>E-3, 2x24, 1 RU, Black, 12"</b>	
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNIBS/E3 M2OU12L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNIIS/E3 M2OU12L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNILS/E3 M2OU12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNIBS/E3 M2OU12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNIIS/E3 M2OU12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNILS/E3 M2OU12L
E3, 2x24, 1 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNIBS/E3 M2OU12L
E3, 2x24, 1 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNIIS/E3 M2OU12L
<b>E-90, 2x24, 1 RU, Black, 7"</b>	
E90, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNIBS/E90 M2OU7L
E90, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNIIS/E90 M2OU7L
E90, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNILS/E90 M2OU7L
E90, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNIBS/E90 M2OU7L
E90, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNIIS/E90 M2OU7L
E90, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNILS/E90 M2OU7L
E90, 2x24, 1 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNIBS/E90 M2OU7L
E90, 2x24, 1 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNIIS/E90 M2OU7L
<b>E-90, 2x24, 1 RU, Black, 12"</b>	
E90, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNIBS/E90 M2OU12L
E90, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNIIS/E90 M2OU12L
E90, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNILS/E90 M2OU12L
E90, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNIBS/E90 M2OU12L
E90, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNIIS/E90 M2OU12L
E90, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNILS/E90 M2OU12L
E90, 2x24, 1 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNIBS/E90 M2OU12L
E90, 2x24, 1 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNIIS/E90 M2OU12L

### REAR INTERFACE OPTIONS

The 488 Series comes with four rear interface options – E-3, E-90, ID (punchdown) and D25. Full views of E3, E90 and ID (punchdown) rear interfaces can be seen throughout this catalog; full view of the D25 rear interface can be seen at [Bittree.com](http://Bittree.com).



ACCESSORIES  
 INTEGRATED  
 RS-422 PROG.  
 RS-422 ACTIVE  
 AUDIO 1/4"  
 AUDIO TT  
 AES AUDIO  
 COMP. VIDEO  
 E-SERIES VIDEO  
 HB VIDEO

For fast, easy ordering visit [bittree.com](http://bittree.com)



LPC PATCH CORDS

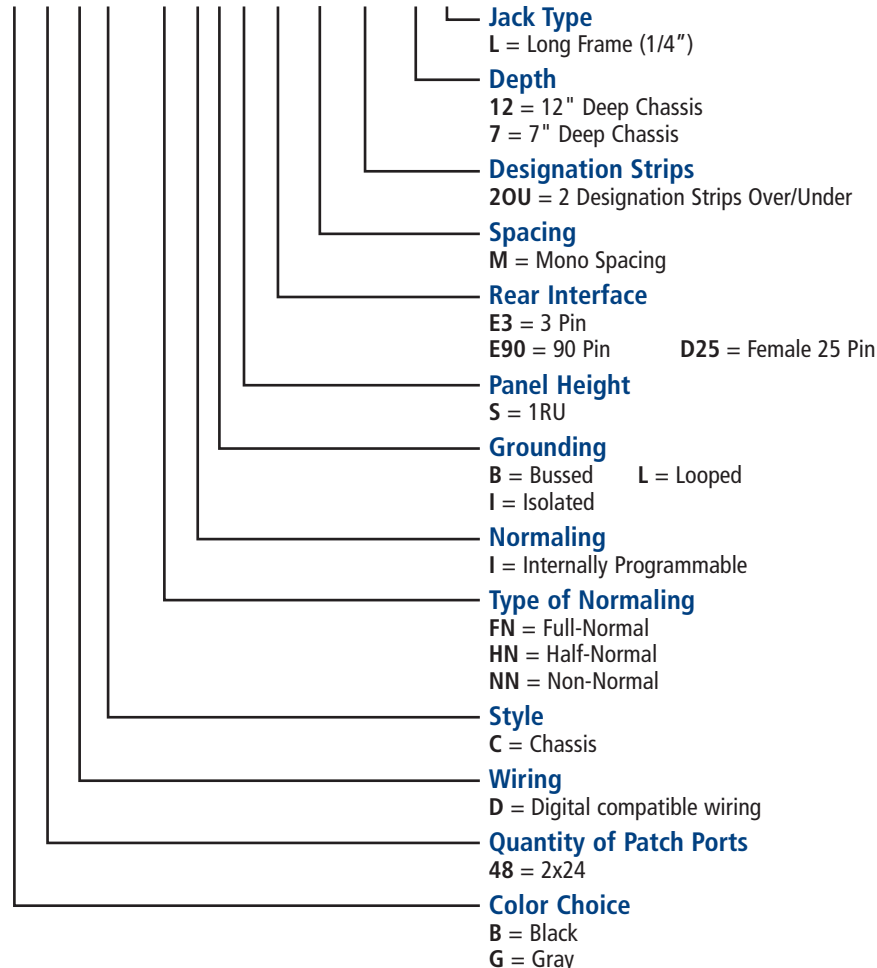
**AUDIO LONG FRAME (1/4")**  
LPC 24 00 – 110

- Color**  
00= Black  
02= Red  
04= Yellow  
05= Green  
06= Blue  
07= Purple

- Length in Inches (cm)**  
24 (61)  
36 (92)  
48 (122)  
60 (153)  
72 (184)

Our easy-to-use Ordering Codes let you order the exact patching system you need. As shown in the chart below, simply choose the option you want for each specification.

**B 48 D C – FN I B S /E3 M 20U 12 L**



Mating connectors, contacts and normals (where applicable) are included with standard rear interface audio patchbays. Lacing bars are included with all audio patchbays.



- **Classic, Non-Programmable Audio Long-Frame (1/4") Patchbay**
- **Available with more options than any audio patchbay, including rear interface, normaling, grounding, jack spacing, panel color, chassis depth and rack-unit height**
- **Spacious 2 x 24 jack configuration; 1, 1.5 or 2 RU size**
- **Rear interface options include E-3, E-56, E-90, ID (punchdown) and D25**

Our 481 Series features our classic, non-programmable audio patchbays. With a jack configuration of 2 x 24, the 481 Series comes with the most options of any audio patchbay, including rear interface, normaling, grounding, jack spacing, panel color, chassis depth and rack-unit height.

All Bittree audio patchbays bring you enhanced studio versatility and instant signal re-routing, and are perfect for master control and central switching I/O, audio console I/O, recording device I/O, and audio routing switcher bypass and input rerouting.

Our audio patchbays are built to AES/EBU specifications, and are internally wired with low-capacitance, shielded, 110-ohm twisted pairs. The low-capacitance characteristics make them ideal for both digital as well as analog applications.

- Available in 1, 1.5 or 2 rack units (RU), in fully enclosed 7" or 12" deep chassis
- Normals can be set to full-normal, half-normal or non-normal; Grounding can be set to switched, bussed, isolated or looped
- Normals can be looped internally or brought out to the rear interface
- Rear interface options include E-3, E-56, E-90, ID (Punchdown), D25 and Centronics 50-pin
- Gold-plated contacts used in E3 and E90 rear interface
- Jacks rated to 30,000 minimum insertion cycles
- Precision-stamped reinforced steel jack frame
- Copper-nickel-silver alloy leaf springs with gold-plated cross bar switching contacts and nickel-plated sleeve bushings
- Wired with low-capacitance, AES/EBU-rated shielded, twisted pair
- Panels made from 3/16" solid aluminum with a durable powder-coat finish
- Large user-friendly designation strips
- Mating connectors, contacts and normals (where applicable) are included with all standard rear interfaces



Think of our 481 Series of Audio Patchbays as our “Custom” series – without the cost and delays of a typical custom patchbay. This series allows you to build virtually any patchbay in virtually any configuration. On the following pages are just some of the configurations available. Only E-3 rear interfaces are listed here, but we also offer E-56, E-90, ID (punchdown), D25 and Centronic 50-pin rear interfaces. If you don’t see what you’re looking for, please call your Bittree Sales Consultant.

DESCRIPTION	PRODUCT NUMBER
<b>E-3, 1x24, 1 RU, Black, Mono Spacing</b>	
E3, 1x24, 1 RU, Black, 7" Chassis, Non-Normal, Bussed	B24DC-NNNBS/E3 M1007L
E3, 1x24, 1 RU, Black, 7" Chassis, Non-Normal, Isolated	B24DC-NNNIS/E3 M1007L
E3, 1x24, 1 RU, Black, 12" Chassis, Non-Normal, Bussed	B24DC-NNNBS/E3 M10012L
E3, 1x24, 1 RU, Black, 12" Chassis, Non-Normal, Isolated	B24DC-NNNIS/E3 M10012L
<b>E-3, 1x24, 1 RU, Black, Stereo Spacing</b>	
E3, 1x24, 1 RU, Black, 7" Chassis, Non-Normal, Bussed	B24DC-NNNBS/E3 S1007L
E3, 1x24, 1 RU, Black, 7" Chassis, Non-Normal, Isolated	B24DC-NNNIS/E3 S1007L
E3, 1x24, 1 RU, Black, 12" Chassis, Non-Normal, Bussed	B24DC-NNNBS/E3 S10012L
E3, 1x24, 1 RU, Black, 12" Chassis, Non-Normal, Isolated	B24DC-NNNIS/E3 S10012L
<b>E-3, 2x24, 1 RU, Black, Mono Spacing, Over/Under Strips</b>	
See the 488 Series for patchbays that meet these specifications.	
<b>E-3, 2x24, 1 RU, Black, Stereo Spacing, Over/Under Strips</b>	
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNLBS/E3 S20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNLIS/E3 S20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNLLS/E3 S20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNLSS/E3 S20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNLBS/E3 S20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNLIS/E3 S20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNLLS/E3 S20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNLSS/E3 S20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNNBS/E3 S20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNNIS/E3 S20U7L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNLBS/E3 S20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNLIS/E3 S20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNLLS/E3 S20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNLSS/E3 S20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNLBS/E3 S20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNLIS/E3 S20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNLLS/E3 S20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNLSS/E3 S20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNNBS/E3 S20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNNIS/E3 S20U12L
<b>E-3, 2x24, 1 RU, Black, Mono Spacing, Over/Over Strips</b>	
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNLBS/E3 M2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNLIS/E3 M2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNLLS/E3 M2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNLSS/E3 M2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNLBS/E3 M2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNLIS/E3 M2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNLLS/E3 M2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNLSS/E3 M2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNNBS/E3 M2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNNIS/E3 M2007L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNLBS/E3 M20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNLIS/E3 M20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNLLS/E3 M20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNLSS/E3 M20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNLBS/E3 M20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNLIS/E3 M20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNLLS/E3 M20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNLSS/E3 M20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNNBS/E3 M20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNNIS/E3 M20012L



DESCRIPTION	PRODUCT NUMBER
<b>E-3, 2x24, 1 RU, Black, Stereo Spacing, Over/Over Strips</b>	
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNLBS/E3 S2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNLIS/E3 S2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNLLS/E3 S2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNLSS/E3 S2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNLBS/E3 S2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNLIS/E3 S2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNLLS/E3 S2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNLSS/E3 S2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNNBS/E3 S2007L
E3, 2x24, 1 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNNIS/E3 S2007L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNLBS/E3 S20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNLIS/E3 S20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNLLS/E3 S20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNLSS/E3 S20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNLBS/E3 S20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNLIS/E3 S20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNLLS/E3 S20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNLSS/E3 S20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNNBS/E3 S20012L
E3, 2x24, 1 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNNIS/E3 S20012L
<b>E-3, 2x24, 1.5 RU, Black, Mono Spacing, Over/Under Strips</b>	
See the 489 Series and 489-S Series for patchbays that meet these specifications.	
<b>E-3, 2x24, 1.5 RU, Black, Stereo Spacing, Over/Under Strips</b>	
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNLBH/E3 S20U7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNLIH/E3 S20U7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNLLH/E3 S20U7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNLSH/E3 S20U7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNLBH/E3 S20U7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNLIH/E3 S20U7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNLLH/E3 S20U7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNLSH/E3 S20U7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNNBH/E3 S20U7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNNIH/E3 S20U7L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNLBH/E3 S20U12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNLIH/E3 S20U12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNLLH/E3 S20U12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNLSH/E3 S20U12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNLBH/E3 S20U12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNLIH/E3 S20U12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNLLH/E3 S20U12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNLSH/E3 S20U12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNNBH/E3 S20U12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNNIH/E3 S20U12L
<b>E-3, 2x24, 1.5 RU, Black, Mono Spacing, Over/Over Strips</b>	
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNLBH/E3 M2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNLIH/E3 M2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNLLH/E3 M2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNLSH/E3 M2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNLBH/E3 M2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNLIH/E3 M2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNLLH/E3 M2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNLSH/E3 M2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNNBH/E3 M2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNNIH/E3 M2007L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNLBH/E3 M20012L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNLIH/E3 M20012L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNLLH/E3 M20012L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNLSH/E3 M20012L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNLBH/E3 M20012L

*continued on next page*

DESCRIPTION	PRODUCT NUMBER
<b>E-3, 2x24, 1.5 RU, Black, Mono Spacing, Over/Over Strips</b>	
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNLIH/E3 M20012L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNLLH/E3 M20012L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNLSH/E3 M20012L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNNBH/E3 M20012L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNNIH/E3 M20012L
<b>E-3, 2x24, 1.5 RU, Black, Stereo Spacing, Over/Over Strips</b>	
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNLBH/E3 S2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNLIH/E3 S2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNLLH/E3 S2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNLSH/E3 S2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNLBH/E3 S2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNLIH/E3 S2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNLLH/E3 S2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNLSH/E3 S2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNNBH/E3 S2007L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNNIH/E3 S2007L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNLBH/E3 S20012L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNLIH/E3 S20012L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNLLH/E3 S20012L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNLSH/E3 S20012L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNLBH/E3 S20012L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNLIH/E3 S20012L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNLLH/E3 S20012L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNLSH/E3 S20012L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNNBH/E3 S20012L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNNIH/E3 S20012L
<b>E-3, 2x24, 2 RU, Black, Mono Spacing, Over/Under Strips</b>	
See the 489 Series and 489-S Series for patchbays that meet these specifications.	
<b>E-3, 2x24, 2 RU, Black, Stereo Spacing, Over/Under Strips</b>	
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNLBT/E3 S20U7L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNLIT/E3 S20U7L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNLLT/E3 S20U7L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNLST/E3 S20U7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNLBT/E3 S20U7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNLIT/E3 S20U7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNLLT/E3 S20U7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNLST/E3 S20U7L
E3, 2x24, 2 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNNBT/E3 S20U7L
E3, 2x24, 2 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNNIT/E3 S20U7L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNLBT/E3 S20U12L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNLIT/E3 S20U12L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNLLT/E3 S20U12L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNLST/E3 S20U12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNLBT/E3 S20U12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNLIT/E3 S20U12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNLLT/E3 S20U12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNLST/E3 S20U12L
E3, 2x24, 2 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNNBT/E3 S20U12L
E3, 2x24, 2 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNNIT/E3 S20U12L
<b>E-3, 2x24, 2 RU, Black, Mono Spacing, Over/Over Strips</b>	
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNLBT/E3 M2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNLIT/E3 M2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNLLT/E3 M2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNLST/E3 M2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNLBT/E3 M2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNLIT/E3 M2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNLLT/E3 M2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNLST/E3 M2007L

*continued on next page*

DESCRIPTION	PRODUCT NUMBER
<b>E-3, 2x24, 2 RU, Black, Mono Spacing, Over/Over Strips</b>	
E3, 2x24, 2 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNNBT/E3 M2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNNIT/E3 M2007L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNLBT/E3 M20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNLIT/E3 M20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNLLT/E3 M20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNLST/E3 M20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNLBT/E3 M20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNLIT/E3 M20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNLLT/E3 M20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNLST/E3 M20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNNBT/E3 M20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNNIT/E3 M20012L
<b>E-3, 2x24, 2 RU, Black, Stereo Spacing, Over/Over Strips</b>	
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNLBT/E3 S2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNLIT/E3 S2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNLLT/E3 S2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNLST/E3 S2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNLBT/E3 S2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNLIT/E3 S2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNLLT/E3 S2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNLST/E3 S2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Non-Normal, Bussed	B48DC-NNNBT/E3 S2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Non-Normal, Isolated	B48DC-NNNIT/E3 S2007L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNLBT/E3 S20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNLIT/E3 S20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNLLT/E3 S20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNLST/E3 S20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNLBT/E3 S20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNLIT/E3 S20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNLLT/E3 S20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNLST/E3 S20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Non-Normal, Bussed	B48DC-NNNBT/E3 S20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Non-Normal, Isolated	B48DC-NNNIT/E3 S20012L
<b>E-3, 2x24, 1 RU, Black, Mono Spacing, Over/Under Strips, Normals Out</b>	
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNOBS/E3 M20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNOIS/E3 M20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNOLS/E3 M20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNOSS/E3 M20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNOBS/E3 M20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNOIS/E3 M20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNOLS/E3 M20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNOSS/E3 M20U7L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNOBS/E3 M20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNOIS/E3 M20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNOLS/E3 M20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNOSS/E3 M20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNOBS/E3 M20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNOIS/E3 M20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNOLS/E3 M20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNOSS/E3 M20U12L
<b>E-3, 2x24, 1 RU, Black, Stereo Spacing, Over/Under Strips, Normals Out</b>	
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNOBS/E3 S20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNOIS/E3 S20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNOLS/E3 S20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNOSS/E3 S20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNOBS/E3 S20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNOIS/E3 S20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNOLS/E3 S20U7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNOSS/E3 S20U7L

*continued on next page*

HB VIDEO  
E-SERIES VIDEO  
COMP. VIDEO  
AES AUDIO  
AUDIO TT  
AUDIO 1/4"  
RS-422 ACTIVE  
RS-422 PROG.  
INTEGRATED  
ACCESSORIES



DESCRIPTION	PRODUCT NUMBER
<b>E-3, 2x24, 1 RU, Black, Stereo Spacing, Over/Under Strips, Normals Out</b>	
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNOBS/E3 S20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNOIS/E3 S20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNOLS/E3 S20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNOSS/E3 S20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNOBS/E3 S20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNOIS/E3 S20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNOLS/E3 S20U12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNOSS/E3 S20U12L
<b>E-3, 2x24, 1 RU, Black, Mono Spacing, Over/Over Strips, Normals Out</b>	
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNOBS/E3 M20O7L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNOIS/E3 M20O7L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNOLS/E3 M20O7L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNOSS/E3 M20O7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNOBS/E3 M20O7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNOIS/E3 M20O7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNOLS/E3 M20O7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNOSS/E3 M20O7L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNOBS/E3 M20O12L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNOIS/E3 M20O12L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNOLS/E3 M20O12L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNOSS/E3 M20O12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNOBS/E3 M20O12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNOIS/E3 M20O12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNOLS/E3 M20O12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNOSS/E3 M20O12L
<b>E-3, 2x24, 1 RU, Black, Stereo Spacing, Over/Over Strips, Normals Out</b>	
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNOBS/E3 S20O7L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNOIS/E3 S20O7L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNOLS/E3 S20O7L
E3, 2x24, 1 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNOSS/E3 S20O7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNOBS/E3 S20O7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNOIS/E3 S20O7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNOLS/E3 S20O7L
E3, 2x24, 1 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNOSS/E3 S20O7L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNOBS/E3 S20O12L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNOIS/E3 S20O12L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNOLS/E3 S20O12L
E3, 2x24, 1 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNOSS/E3 S20O12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNOBS/E3 S20O12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNOIS/E3 S20O12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNOLS/E3 S20O12L
E3, 2x24, 1 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNOSS/E3 S20O12L
<b>E-3, 2x24, 1.5 RU, Black, Mono Spacing, Over/Under Strips, Normals Out</b>	
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNOBH/E3 M20U7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNOIH/E3 M20U7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNOLH/E3 M20U7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNOSH/E3 M20U7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNOBH/E3 M20U7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNOIH/E3 M20U7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNOLH/E3 M20U7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNOSH/E3 M20U7L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNOBH/E3 M20U12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNOIH/E3 M20U12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNOLH/E3 M20U12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNOSH/E3 M20U12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNOBH/E3 M20U12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNOIH/E3 M20U12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNOLH/E3 M20U12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNOSH/E3 M20U12L

DESCRIPTION	PRODUCT NUMBER
<b>E-3, 2x24, 1.5 RU, Black, Stereo Spacing, Over/Under Strips, Normals Out</b>	
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNOBH/E3 S2OU7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNOIH/E3 S2OU7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNOLH/E3 S2OU7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNOSH/E3 S2OU7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNOBH/E3 S2OU7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNOIH/E3 S2OU7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNOLH/E3 S2OU7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNOSH/E3 S2OU7L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNOBH/E3 S2OU12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNOIH/E3 S2OU12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNOLH/E3 S2OU12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNOSH/E3 S2OU12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNOBH/E3 S2OU12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNOIH/E3 S2OU12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNOLH/E3 S2OU12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNOSH/E3 S2OU12L
<b>E-3, 2x24, 1.5 RU, Black, Mono Spacing, Over/Over Strips, Normals Out</b>	
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNOBH/E3 M2OO7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNOIH/E3 M2OO7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNOLH/E3 M2OO7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNOSH/E3 M2OO7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNOBH/E3 M2OO7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNOIH/E3 M2OO7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNOLH/E3 M2OO7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNOSH/E3 M2OO7L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNOBH/E3 M2OO12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNOIH/E3 M2OO12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNOLH/E3 M2OO12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNOSH/E3 M2OO12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNOBH/E3 M2OO12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNOIH/E3 M2OO12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNOLH/E3 M2OO12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNOSH/E3 M2OO12L
<b>E-3, 2x24, 1.5 RU, Black, Stereo Spacing, Over/Over Strips, Normals Out</b>	
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNOBH/E3 S2OO7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNOIH/E3 S2OO7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNOLH/E3 S2OO7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNOSH/E3 S2OO7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNOBH/E3 S2OO7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNOIH/E3 S2OO7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNOLH/E3 S2OO7L
E3, 2x24, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNOSH/E3 S2OO7L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNOBH/E3 S2OO12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNOIH/E3 S2OO12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNOLH/E3 S2OO12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNOSH/E3 S2OO12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNOBH/E3 S2OO12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNOIH/E3 S2OO12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNOLH/E3 S2OO12L
E3, 2x24, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNOSH/E3 S2OO12L

HB VIDEO

E-SERIES VIDEO

COMP. VIDEO

AES AUDIO

AUDIO TT

AUDIO 1/4"

RS-422 ACTIVE

RS-422 PROG.

INTEGRATED

ACCESSORIES



DESCRIPTION	PRODUCT NUMBER
<b>E-3, 2x24, 2 RU, Black, Mono Spacing, Over/Under Strips, Normals Out</b>	
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNOBT/E3 M2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNOIT/E3 M2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNOLT/E3 M2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNOST/E3 M2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNOBT/E3 M2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNOIT/E3 M2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNOLT/E3 M2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNOST/E3 M2OU7L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNOBT/E3 M2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNOIT/E3 M2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNOLT/E3 M2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNOST/E3 M2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNOBT/E3 M2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNOIT/E3 M2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNOLT/E3 M2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNOST/E3 M2OU12L
<b>E-3, 2x24, 2 RU, Black, Stereo Spacing, Over/Under Strips, Normals Out</b>	
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNOBT/E3 S2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNOIT/E3 S2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNOLT/E3 S2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNOST/E3 S2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNOBT/E3 S2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNOIT/E3 S2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNOLT/E3 S2OU7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNOST/E3 S2OU7L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNOBT/E3 S2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNOIT/E3 S2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNOLT/E3 S2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNOST/E3 S2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNOBT/E3 S2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNOIT/E3 S2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNOLT/E3 S2OU12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNOST/E3 S2OU12L
<b>E-3, 2x24, 2 RU, Black, Mono Spacing, Over/Over Strips, Normals Out</b>	
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNOBT/E3 M2OO7L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNOIT/E3 M2OO7L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNOLT/E3 M2OO7L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNOST/E3 M2OO7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNOBT/E3 M2OO7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNOIT/E3 M2OO7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNOLT/E3 M2OO7L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNOST/E3 M2OO7L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNOBT/E3 M2OO12L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNOIT/E3 M2OO12L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNOLT/E3 M2OO12L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNOST/E3 M2OO12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNOBT/E3 M2OO12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNOIT/E3 M2OO12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNOLT/E3 M2OO12L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNOST/E3 M2OO12L

DESCRIPTION	PRODUCT NUMBER
<b>E-3, 2x24, 2 RU, Black, Stereo Spacing, Over/Over Strips, Normals Out</b>	
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B48DC-FNOBT/E3 S2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B48DC-FNOIT/E3 S2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B48DC-FNOLT/E3 S2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B48DC-FNOST/E3 S2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B48DC-HNOBT/E3 S2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B48DC-HNOIT/E3 S2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B48DC-HNOLT/E3 S2007L
E3, 2x24, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B48DC-HNOST/E3 S2007L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B48DC-FNOBT/E3 S20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B48DC-FNOIT/E3 S20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B48DC-FNOLT/E3 S20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B48DC-FNOST/E3 S20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B48DC-HNOBT/E3 S20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B48DC-HNOIT/E3 S20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B48DC-HNOLT/E3 S20012L
E3, 2x24, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B48DC-HNOST/E3 S20012L

### REAR INTERFACE OPTIONS

The 481 Series comes with six rear interface options – E-3, E-56, E-90, ID (punchdown), D25 and Centronics 50-pin. Full views of E3, E90 and ID (punchdown) rear interfaces can be seen throughout this catalog; full views of the E-56, D25 and Centronics 50-Pin rear interfaces can be seen at [Bittree.com](http://Bittree.com).



For fast, easy ordering visit [bittree.com](http://bittree.com)



LPC PATCH CORDS

**AUDIO LONG FRAME (1/4")**

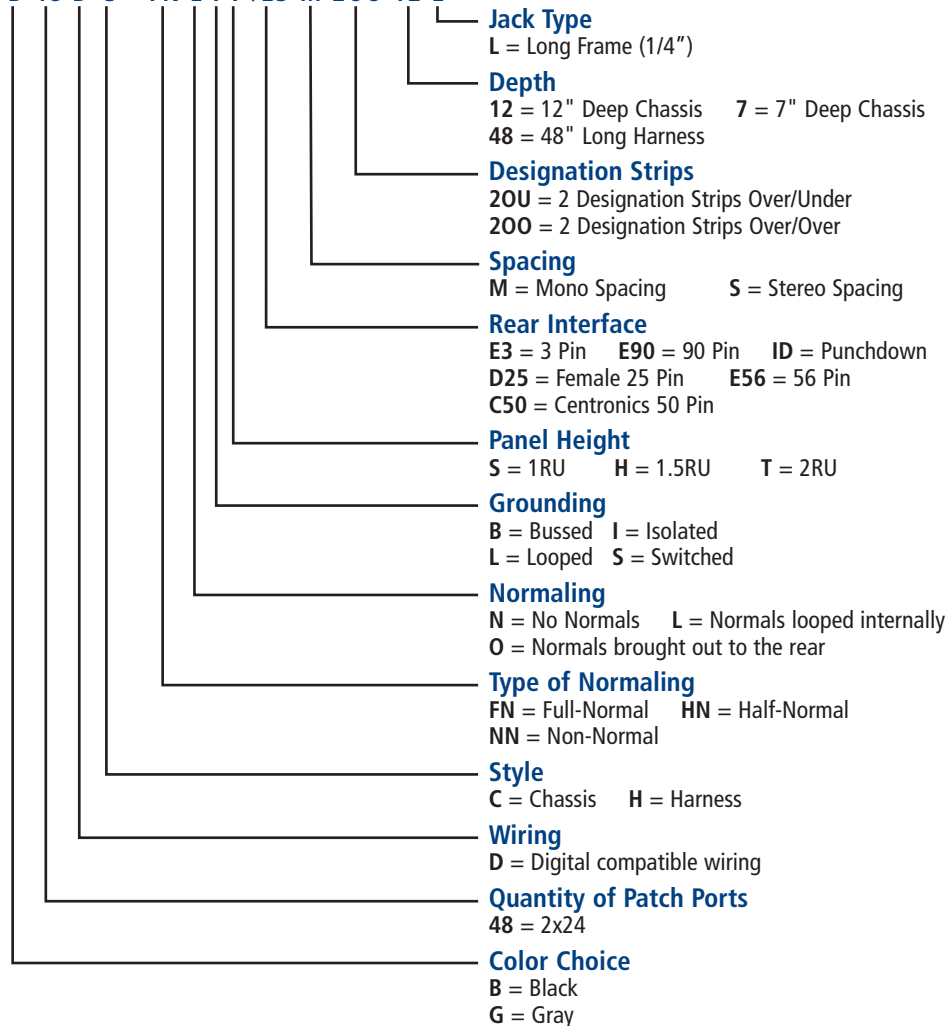
LPC 24 00 – 110

- Color**  
 00= Black  
 02= Red  
 04= Yellow  
 05= Green  
 06= Blue  
 07= Purple

- Length in Inches (cm)**  
 24 (61)  
 36 (92)  
 48 (122)  
 60 (153)  
 72 (184)

Our easy-to-use Ordering Codes let you order the exact patching system you need. As shown in the chart below, simply choose the option you want for each specification.

**B 48 D C – FN L I T /E3 M 20U 12 L**



Mating connectors, contacts and normals (where applicable) are included with standard rear interface audio patchbays. Lacing bars are included with all audio patchbays.

Normals out patchbays bring the normals to the rear interface so that if desired the user may de-normal a circuit by removing a jumper. The 3-pin rear interface always brings the shield to the rear interface. To loop the ground use a three-wire jumper (Normal 3-E); to isolate the ground use a two-wire jumper (Normal 2-E). Note: E90 normals out models do not bring the ground to the normals out connector.



- **Classic, Non-Programmable Audio Long-Frame (1/4") Patchbay**
- **Available with more options than any audio patchbay, including rear interface, normalizing, grounding, jack spacing, panel color, chassis depth and rack-unit height**
- **Spacious 2 x 26 jack configuration; 1, 1.5 or 2 RU size**
- **Rear interface options include E-3, E-56, E-90, ID (punchdown) and D25**

Our 521 Series features our classic, non-programmable audio patchbays. With a jack configuration of 2 x 26, the 521 Series comes with the most options of any audio patchbay, including rear interface, normalizing, grounding, jack spacing, panel color, chassis depth and rack-unit height.

All Bittree audio patchbays bring you enhanced studio versatility and instant signal re-routing, and are perfect for master control and central switching I/O, audio console I/O, recording device I/O, and audio routing switcher bypass and input rerouting.

Our audio patchbays are built to AES/EBU specifications, and are internally wired with low-capacitance, shielded, 110-ohm twisted pairs. The low-capacitance characteristics make them ideal for both digital as well as analog applications.

- Available in 1, 1.5 or 2 rack units (RU), in fully enclosed 7" or 12" deep chassis
- Normals can be set to full-normal, half-normal or non-normal; Grounding can be set to switched, bussed, isolated or looped
- Normals can be looped internally or brought out to the rear interface
- Rear interface options include E-3, E-56, E-90, ID (Punchdown), D25 and Centronics 50-pin
- Gold-plated contacts used in E3 and E90 rear interface
- Jacks rated to 30,000 minimum insertion cycles
- Precision-stamped reinforced steel jack frame
- Copper-nickel-silver alloy leaf springs with gold-plated cross bar switching contacts and nickel-plated sleeve bushings
- Wired with low-capacitance, AES/EBU-rated shielded, twisted pair
- Panels made from 3/16" solid aluminum with a durable powder-coat finish
- Large user-friendly designation strips
- Mating connectors, contacts and normals (where applicable) are included with all standard rear interfaces



Think of our 521 Series of Audio Patchbays as our “Custom” series – without the cost and delays of a typical custom patchbay. This series allows you to build virtually any patchbay in virtually any configuration. On the following pages are just some of the configurations available. Only E-3 rear interfaces are listed here, but we also offer E-56, E-90, ID (punchdown) and D25 rear interfaces. If you don’t see what you’re looking for, please call your Bittree Sales Consultant.

DESCRIPTION	PRODUCT NUMBER
<p><b>E-3, 1x26, 1 RU, Black, 7”, Over/Over Strips</b>                      E3, 1x26, 1 RU, Black, 7" Chassis, Non-Normal, Bussed                      E3, 1x26, 1 RU, Black, 7" Chassis, Non-Normal, Isolated</p>	<p>B26DC-NNNBS/E3 M1007L                      B26DC-NNNIS/E3 M1007L</p>
<p><b>E-3, 1x26, 1 RU, Black, 12”, Over/Over Strips</b>                      E3, 1x26, 1 RU, Black, 12" Chassis, Non-Normal, Bussed                      E3, 1x26, 1 RU, Black, 12" Chassis, Non-Normal, Isolated</p>	<p>B26DC-NNNBS/E3 M10012L                      B26DC-NNNIS/E3 M10012L</p>
<p><b>E-3, 2x26, 1 RU, Black, 7”, Over/Under Strips</b>                      E3, 2x26, 1 RU, Black, 7" Chassis, Full-Normal, Bussed                      E3, 2x26, 1 RU, Black, 7" Chassis, Full-Normal, Isolated                      E3, 2x26, 1 RU, Black, 7" Chassis, Full-Normal, Looped                      E3, 2x26, 1 RU, Black, 7" Chassis, Full-Normal, Switched                      E3, 2x26, 1 RU, Black, 7" Chassis, Half-Normal, Bussed                      E3, 2x26, 1 RU, Black, 7" Chassis, Half-Normal, Isolated                      E3, 2x26, 1 RU, Black, 7" Chassis, Half-Normal, Looped                      E3, 2x26, 1 RU, Black, 7" Chassis, Half-Normal, Switched                      E3, 2x26, 1 RU, Black, 7" Chassis, Non-Normal, Bussed                      E3, 2x26, 1 RU, Black, 7" Chassis, Non-Normal, Isolated</p>	<p>B52DC-FNLBS/E3 M20U7L                      B52DC-FNLIS/E3 M20U7L                      B52DC-FNLLS/E3 M20U7L                      B52DC-FNLSS/E3 M20U7L                      B52DC-HNLBS/E3 M20U7L                      B52DC-HNLIS/E3 M20U7L                      B52DC-HNLLS/E3 M20U7L                      B52DC-HNLSS/E3 M20U7L                      B52DC-NNNBS/E3 M20U7L                      B52DC-NNNIS/E3 M20U7L</p>
<p><b>E-3, 2x26, 1 RU, Black, 12”, Over/Under Strips</b>                      E3, 2x26, 1 RU, Black, 12" Chassis, Full-Normal, Bussed                      E3, 2x26, 1 RU, Black, 12" Chassis, Full-Normal, Isolated                      E3, 2x26, 1 RU, Black, 12" Chassis, Full-Normal, Looped                      E3, 2x26, 1 RU, Black, 12" Chassis, Full-Normal, Switched                      E3, 2x26, 1 RU, Black, 12" Chassis, Half-Normal, Bussed                      E3, 2x26, 1 RU, Black, 12" Chassis, Half-Normal, Isolated                      E3, 2x26, 1 RU, Black, 12" Chassis, Half-Normal, Looped                      E3, 2x26, 1 RU, Black, 12" Chassis, Half-Normal, Switched                      E3, 2x26, 1 RU, Black, 12" Chassis, Non-Normal, Bussed                      E3, 2x26, 1 RU, Black, 12" Chassis, Non-Normal, Isolated</p>	<p>B52DC-FNLBS/E3 M20U12L                      B52DC-FNLIS/E3 M20U12L                      B52DC-FNLLS/E3 M20U12L                      B52DC-FNLSS/E3 M20U12L                      B52DC-HNLBS/E3 M20U12L                      B52DC-HNLIS/E3 M20U12L                      B52DC-HNLLS/E3 M20U12L                      B52DC-HNLSS/E3 M20U12L                      B52DC-NNNBS/E3 M20U12L                      B52DC-NNNIS/E3 M20U12L</p>
<p><b>E-3, 2x26, 1 RU, Black, 7”, Over/Over Strips</b>                      E3, 2x26, 1 RU, Black, 7" Chassis, Full-Normal, Bussed                      E3, 2x26, 1 RU, Black, 7" Chassis, Full-Normal, Isolated                      E3, 2x26, 1 RU, Black, 7" Chassis, Full-Normal, Looped                      E3, 2x26, 1 RU, Black, 7" Chassis, Full-Normal, Switched                      E3, 2x26, 1 RU, Black, 7" Chassis, Half-Normal, Bussed                      E3, 2x26, 1 RU, Black, 7" Chassis, Half-Normal, Isolated                      E3, 2x26, 1 RU, Black, 7" Chassis, Half-Normal, Looped                      E3, 2x26, 1 RU, Black, 7" Chassis, Half-Normal, Switched                      E3, 2x26, 1 RU, Black, 7" Chassis, Non-Normal, Bussed                      E3, 2x26, 1 RU, Black, 7" Chassis, Non-Normal, Isolated</p>	<p>B52DC-FNLBS/E3 M20O7L                      B52DC-FNLIS/E3 M20O7L                      B52DC-FNLLS/E3 M20O7L                      B52DC-FNLSS/E3 M20O7L                      B52DC-HNLBS/E3 M20O7L                      B52DC-HNLIS/E3 M20O7L                      B52DC-HNLLS/E3 M20O7L                      B52DC-HNLSS/E3 M20O7L                      B52DC-NNNBS/E3 M20O7L                      B52DC-NNNIS/E3 M20O7L</p>
<p><b>E-3, 2x26, 1 RU, Black, 12”, Over/Over Strips</b>                      E3, 2x26, 1 RU, Black, 12" Chassis, Full-Normal, Bussed                      E3, 2x26, 1 RU, Black, 12" Chassis, Full-Normal, Isolated                      E3, 2x26, 1 RU, Black, 12" Chassis, Full-Normal, Looped                      E3, 2x26, 1 RU, Black, 12" Chassis, Full-Normal, Switched                      E3, 2x26, 1 RU, Black, 12" Chassis, Half-Normal, Bussed                      E3, 2x26, 1 RU, Black, 12" Chassis, Half-Normal, Isolated                      E3, 2x26, 1 RU, Black, 12" Chassis, Half-Normal, Looped                      E3, 2x26, 1 RU, Black, 12" Chassis, Half-Normal, Switched                      E3, 2x26, 1 RU, Black, 12" Chassis, Non-Normal, Bussed                      E3, 2x26, 1 RU, Black, 12" Chassis, Non-Normal, Isolated</p>	<p>B52DC-FNLBS/E3 M20O12L                      B52DC-FNLIS/E3 M20O12L                      B52DC-FNLLS/E3 M20O12L                      B52DC-FNLSS/E3 M20O12L                      B52DC-HNLBS/E3 M20O12L                      B52DC-HNLIS/E3 M20O12L                      B52DC-HNLLS/E3 M20O12L                      B52DC-HNLSS/E3 M20O12L                      B52DC-NNNBS/E3 M20O12L                      B52DC-NNNIS/E3 M20O12L</p>



DESCRIPTION	PRODUCT NUMBER
<b>E-3, 2x26, 1.5 RU, Black, 7", Over/Under Strips</b>	
E3, 2x26, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B52DC-FNLBH/E3 M2OU7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B52DC-FNLIH/E3 M2OU7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B52DC-FNLLH/E3 M2OU7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched	B52DC-FNLSH/E3 M2OU7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B52DC-HNLBH/E3 M2OU7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B52DC-HNLIH/E3 M2OU7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B52DC-HNLLH/E3 M2OU7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched	B52DC-HNLSH/E3 M2OU7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Non-Normal, Bussed	B52DC-NNNBH/E3 M2OU7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Non-Normal, Isolated	B52DC-NNNIH/E3 M2OU7L
<b>E-3, 2x26, 1.5 RU, Black, 12", Over/Under Strips</b>	
E3, 2x26, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B52DC-FNLBH/E3 M2OU12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B52DC-FNLIH/E3 M2OU12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B52DC-FNLLH/E3 M2OU12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched	B52DC-FNLSH/E3 M2OU12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B52DC-HNLBH/E3 M2OU12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B52DC-HNLIH/E3 M2OU12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B52DC-HNLLH/E3 M2OU12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched	B52DC-HNLSH/E3 M2OU12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Non-Normal, Bussed	B52DC-NNNBH/E3 M2OU12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Non-Normal, Isolated	B52DC-NNNIH/E3 M2OU12L
<b>E-3, 2x26, 1.5 RU, Black, 7", Over/Over Strips</b>	
E3, 2x26, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B52DC-FNLBH/E3 M2OO7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B52DC-FNLIH/E3 M2OO7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B52DC-FNLLH/E3 M2OO7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched	B52DC-FNLSH/E3 M2OO7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B52DC-HNLBH/E3 M2OO7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B52DC-HNLIH/E3 M2OO7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B52DC-HNLLH/E3 M2OO7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched	B52DC-HNLSH/E3 M2OO7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Non-Normal, Bussed	B52DC-NNNBH/E3 M2OO7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Non-Normal, Isolated	B52DC-NNNIH/E3 M2OO7L
<b>E-3, 2x26, 1.5 RU, Black, 12", Over/Over Strips</b>	
E3, 2x26, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B52DC-FNLBH/E3 M2OO12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B52DC-FNLIH/E3 M2OO12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B52DC-FNLLH/E3 M2OO12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched	B52DC-FNLSH/E3 M2OO12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B52DC-HNLBH/E3 M2OO12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B52DC-HNLIH/E3 M2OO12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B52DC-HNLLH/E3 M2OO12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched	B52DC-HNLSH/E3 M2OO12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Non-Normal, Bussed	B52DC-NNNBH/E3 M2OO12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Non-Normal, Isolated	B52DC-NNNIH/E3 M2OO12L
<b>E-3, 2x26, 2 RU, Black, 7", Over/Under Strips</b>	
E3, 2x26, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B52DC-FNLBT/E3 M2OU7L
E3, 2x26, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B52DC-FNLIT/E3 M2OU7L
E3, 2x26, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B52DC-FNLLT/E3 M2OU7L
E3, 2x26, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B52DC-FNLST/E3 M2OU7L
E3, 2x26, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B52DC-HNLBT/E3 M2OU7L
E3, 2x26, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B52DC-HNLIT/E3 M2OU7L
E3, 2x26, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B52DC-HNLLT/E3 M2OU7L
E3, 2x26, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B52DC-HNLST/E3 M2OU7L
E3, 2x26, 2 RU, Black, 7" Chassis, Non-Normal, Bussed	B52DC-NNNBT/E3 M2OU7L
E3, 2x26, 2 RU, Black, 7" Chassis, Non-Normal, Isolated	B52DC-NNNIT/E3 M2OU7L

HB VIDEO  
 E-SERIES VIDEO  
 COMP. VIDEO  
 AES AUDIO  
 AUDIO TT  
 AUDIO 1/4"  
 RS-422 ACTIVE  
 RS-422 PROG.  
 INTEGRATED  
 ACCESSORIES

DESCRIPTION	PRODUCT NUMBER
<b>E-3, 2x26, 2 RU, Black, 12", Over/Under Strips</b>	
E3, 2x26, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B52DC-FNLBT/E3 M2OU12L
E3, 2x26, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B52DC-FNLIT/E3 M2OU12L
E3, 2x26, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B52DC-FNLLT/E3 M2OU12L
E3, 2x26, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B52DC-FNLST/E3 M2OU12L
E3, 2x26, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B52DC-HNLBT/E3 M2OU12L
E3, 2x26, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B52DC-HNLIT/E3 M2OU12L
E3, 2x26, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B52DC-HNLLT/E3 M2OU12L
E3, 2x26, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B52DC-HNLST/E3 M2OU12L
E3, 2x26, 2 RU, Black, 12" Chassis, Non-Normal, Bussed	B52DC-NNNBT/E3 M2OU12L
E3, 2x26, 2 RU, Black, 12" Chassis, Non-Normal, Isolated	B52DC-NNNIT/E3 M2OU12L
<b>E-3, 2x26, 2 RU, Black, 7", Over/Over Strips</b>	
E3, 2x26, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B52DC-FNLBT/E3 M2OO7L
E3, 2x26, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B52DC-FNLIT/E3 M2OO7L
E3, 2x26, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B52DC-FNLLT/E3 M2OO7L
E3, 2x26, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B52DC-FNLST/E3 M2OO7L
E3, 2x26, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B52DC-HNLBT/E3 M2OO7L
E3, 2x26, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B52DC-HNLIT/E3 M2OO7L
E3, 2x26, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B52DC-HNLLT/E3 M2OO7L
E3, 2x26, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B52DC-HNLST/E3 M2OO7L
E3, 2x26, 2 RU, Black, 7" Chassis, Non-Normal, Bussed	B52DC-NNNBT/E3 M2OO7L
E3, 2x26, 2 RU, Black, 7" Chassis, Non-Normal, Isolated	B52DC-NNNIT/E3 M2OO7L
<b>E-3, 2x26, 2 RU, Black, 12", Over/Over Strips</b>	
E3, 2x26, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B52DC-FNLBT/E3 M2OO12L
E3, 2x26, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B52DC-FNLIT/E3 M2OO12L
E3, 2x26, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B52DC-FNLLT/E3 M2OO12L
E3, 2x26, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B52DC-FNLST/E3 M2OO12L
E3, 2x26, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B52DC-HNLBT/E3 M2OO12L
E3, 2x26, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B52DC-HNLIT/E3 M2OO12L
E3, 2x26, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B52DC-HNLLT/E3 M2OO12L
E3, 2x26, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B52DC-HNLST/E3 M2OO12L
E3, 2x26, 2 RU, Black, 12" Chassis, Non-Normal, Bussed	B52DC-NNNBT/E3 M2OO12L
E3, 2x26, 2 RU, Black, 12" Chassis, Non-Normal, Isolated	B52DC-NNNIT/E3 M2OO12L
<b>E-3, 2x26, 1 RU, Black, 7", Over/Under Strips, Normals Out</b>	
E3, 2x26, 1 RU, Black, 7" Chassis, Full-Normal, Bussed	B52DC-FNOBS/E3 M2OU7L
E3, 2x26, 1 RU, Black, 7" Chassis, Full-Normal, Isolated	B52DC-FNOIS/E3 M2OU7L
E3, 2x26, 1 RU, Black, 7" Chassis, Full-Normal, Looped	B52DC-FNOLS/E3 M2OU7L
E3, 2x26, 1 RU, Black, 7" Chassis, Full-Normal, Switched	B52DC-FNOSS/E3 M2OU7L
E3, 2x26, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B52DC-HNOBS/E3 M2OU7L
E3, 2x26, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B52DC-HNOIS/E3 M2OU7L
E3, 2x26, 1 RU, Black, 7" Chassis, Half-Normal, Looped	B52DC-HNOLS/E3 M2OU7L
E3, 2x26, 1 RU, Black, 7" Chassis, Half-Normal, Switched	B52DC-HNOSS/E3 M2OU7L
<b>E-3, 2x26, 1 RU, Black, 12", Over/Under Strips, Normals Out</b>	
E3, 2x26, 1 RU, Black, 12" Chassis, Full-Normal, Bussed	B52DC-FNOBS/E3 M2OU12L
E3, 2x26, 1 RU, Black, 12" Chassis, Full-Normal, Isolated	B52DC-FNOIS/E3 M2OU12L
E3, 2x26, 1 RU, Black, 12" Chassis, Full-Normal, Looped	B52DC-FNOLS/E3 M2OU12L
E3, 2x26, 1 RU, Black, 12" Chassis, Full-Normal, Switched	B52DC-FNOSS/E3 M2OU12L
E3, 2x26, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B52DC-HNOBS/E3 M2OU12L
E3, 2x26, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B52DC-HNOIS/E3 M2OU12L
E3, 2x26, 1 RU, Black, 12" Chassis, Half-Normal, Looped	B52DC-HNOLS/E3 M2OU12L
E3, 2x26, 1 RU, Black, 12" Chassis, Half-Normal, Switched	B52DC-HNOSS/E3 M2OU12L

DESCRIPTION	PRODUCT NUMBER
<b>E-3, 2x26, 1 RU, Black, 7", Over/Over Strips, Normals Out</b>	
E3, 2x26, 1 RU, Black, 7" Chassis, Full-Normal, Bussed	B52DC-FNOBS/E3 M2007L
E3, 2x26, 1 RU, Black, 7" Chassis, Full-Normal, Isolated	B52DC-FNOIS/E3 M2007L
E3, 2x26, 1 RU, Black, 7" Chassis, Full-Normal, Looped	B52DC-FNOLS/E3 M2007L
E3, 2x26, 1 RU, Black, 7" Chassis, Full-Normal, Switched	B52DC-FNOSS/E3 M2007L
E3, 2x26, 1 RU, Black, 7" Chassis, Half-Normal, Bussed	B52DC-HNOBS/E3 M2007L
E3, 2x26, 1 RU, Black, 7" Chassis, Half-Normal, Isolated	B52DC-HNOIS/E3 M2007L
E3, 2x26, 1 RU, Black, 7" Chassis, Half-Normal, Looped	B52DC-HNOLS/E3 M2007L
E3, 2x26, 1 RU, Black, 7" Chassis, Half-Normal, Switched	B52DC-HNOSS/E3 M2007L
<b>E-3, 2x26, 1 RU, Black, 12", Over/Over Strips, Normals Out</b>	
E3, 2x26, 1 RU, Black, 12" Chassis, Full-Normal, Bussed	B52DC-FNOBS/E3 M20012L
E3, 2x26, 1 RU, Black, 12" Chassis, Full-Normal, Isolated	B52DC-FNOIS/E3 M20012L
E3, 2x26, 1 RU, Black, 12" Chassis, Full-Normal, Looped	B52DC-FNOLS/E3 M20012L
E3, 2x26, 1 RU, Black, 12" Chassis, Full-Normal, Switched	B52DC-FNOSS/E3 M20012L
E3, 2x26, 1 RU, Black, 12" Chassis, Half-Normal, Bussed	B52DC-HNOBS/E3 M20012L
E3, 2x26, 1 RU, Black, 12" Chassis, Half-Normal, Isolated	B52DC-HNOIS/E3 M20012L
E3, 2x26, 1 RU, Black, 12" Chassis, Half-Normal, Looped	B52DC-HNOLS/E3 M20012L
E3, 2x26, 1 RU, Black, 12" Chassis, Half-Normal, Switched	B52DC-HNOSS/E3 M20012L
<b>E-3, 2x26, 1.5 RU, Black, 7", Over/Under Strips, Normals Out</b>	
E3, 2x26, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B52DC-FNOBH/E3 M20U7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B52DC-FNOIH/E3 M20U7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B52DC-FNOLH/E3 M20U7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched	B52DC-FNOSH/E3 M20U7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B52DC-HNOBH/E3 M20U7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B52DC-HNOIH/E3 M20U7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B52DC-HNOLH/E3 M20U7L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched	B52DC-HNOSH/E3 M20U7L
<b>E-3, 2x26, 1.5 RU, Black, 12", Over/Under Strips, Normals Out</b>	
E3, 2x26, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B52DC-FNOBH/E3 M20U12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B52DC-FNOIH/E3 M20U12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B52DC-FNOLH/E3 M20U12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched	B52DC-FNOSH/E3 M20U12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B52DC-HNOBH/E3 M20U12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B52DC-HNOIH/E3 M20U12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B52DC-HNOLH/E3 M20U12L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched	B52DC-HNOSH/E3 M20U12L
<b>E-3, 2x26, 1.5 RU, Black, 7", Over/Over Strips, Normals Out</b>	
E3, 2x26, 1.5 RU, Black, 7" Chassis, Full-Normal, Bussed	B52DC-FNOBH/E3 M2007L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Full-Normal, Isolated	B52DC-FNOIH/E3 M2007L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Full-Normal, Looped	B52DC-FNOLH/E3 M2007L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Full-Normal, Switched	B52DC-FNOSH/E3 M2007L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Half-Normal, Bussed	B52DC-HNOBH/E3 M2007L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Half-Normal, Isolated	B52DC-HNOIH/E3 M2007L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Half-Normal, Looped	B52DC-HNOLH/E3 M2007L
E3, 2x26, 1.5 RU, Black, 7" Chassis, Half-Normal, Switched	B52DC-HNOSH/E3 M2007L
<b>E-3, 2x26, 1.5 RU, Black, 12", Over/Over Strips, Normals Out</b>	
E3, 2x26, 1.5 RU, Black, 12" Chassis, Full-Normal, Bussed	B52DC-FNOBH/E3 M20012L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Full-Normal, Isolated	B52DC-FNOIH/E3 M20012L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Full-Normal, Looped	B52DC-FNOLH/E3 M20012L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Full-Normal, Switched	B52DC-FNOSH/E3 M20012L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Half-Normal, Bussed	B52DC-HNOBH/E3 M20012L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Half-Normal, Isolated	B52DC-HNOIH/E3 M20012L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Half-Normal, Looped	B52DC-HNOLH/E3 M20012L
E3, 2x26, 1.5 RU, Black, 12" Chassis, Half-Normal, Switched	B52DC-HNOSH/E3 M20012L

DESCRIPTION	PRODUCT NUMBER
<b>E-3, 2x26, 2 RU, Black, 7", Over/Under Strips, Normals Out</b>	
E3, 2x26, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B52DC-FNOBT/E3 M2OU7L
E3, 2x26, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B52DC-FNOIT/E3 M2OU7L
E3, 2x26, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B52DC-FNOLT/E3 M2OU7L
E3, 2x26, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B52DC-FNOST/E3 M2OU7L
E3, 2x26, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B52DC-HNOBT/E3 M2OU7L
E3, 2x26, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B52DC-HNOIT/E3 M2OU7L
E3, 2x26, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B52DC-HNOLT/E3 M2OU7L
E3, 2x26, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B52DC-HNOST/E3 M2OU7L
<b>E-3, 2x26, 2 RU, Black, 12", Over/Under Strips, Normals Out</b>	
E3, 2x26, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B52DC-FNOBT/E3 M2OU12L
E3, 2x26, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B52DC-FNOIT/E3 M2OU12L
E3, 2x26, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B52DC-FNOLT/E3 M2OU12L
E3, 2x26, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B52DC-FNOST/E3 M2OU12L
E3, 2x26, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B52DC-HNOBT/E3 M2OU12L
E3, 2x26, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B52DC-HNOIT/E3 M2OU12L
E3, 2x26, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B52DC-HNOLT/E3 M2OU12L
E3, 2x26, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B52DC-HNOST/E3 M2OU12L
<b>E-3, 2x26, 2 RU, Black, 7", Over/Over Strips, Normals Out</b>	
E3, 2x26, 2 RU, Black, 7" Chassis, Full-Normal, Bussed	B52DC-FNOBT/E3 M2OO7L
E3, 2x26, 2 RU, Black, 7" Chassis, Full-Normal, Isolated	B52DC-FNOIT/E3 M2OO7L
E3, 2x26, 2 RU, Black, 7" Chassis, Full-Normal, Looped	B52DC-FNOLT/E3 M2OO7L
E3, 2x26, 2 RU, Black, 7" Chassis, Full-Normal, Switched	B52DC-FNOST/E3 M2OO7L
E3, 2x26, 2 RU, Black, 7" Chassis, Half-Normal, Bussed	B52DC-HNOBT/E3 M2OO7L
E3, 2x26, 2 RU, Black, 7" Chassis, Half-Normal, Isolated	B52DC-HNOIT/E3 M2OO7L
E3, 2x26, 2 RU, Black, 7" Chassis, Half-Normal, Looped	B52DC-HNOLT/E3 M2OO7L
E3, 2x26, 2 RU, Black, 7" Chassis, Half-Normal, Switched	B52DC-HNOST/E3 M2OO7L
<b>E-3, 2x26, 2 RU, Black, 12", Over/Over Strips, Normals Out</b>	
E3, 2x26, 2 RU, Black, 12" Chassis, Full-Normal, Bussed	B52DC-FNOBT/E3 M2OO12L
E3, 2x26, 2 RU, Black, 12" Chassis, Full-Normal, Isolated	B52DC-FNOIT/E3 M2OO12L
E3, 2x26, 2 RU, Black, 12" Chassis, Full-Normal, Looped	B52DC-FNOLT/E3 M2OO12L
E3, 2x26, 2 RU, Black, 12" Chassis, Full-Normal, Switched	B52DC-FNOST/E3 M2OO12L
E3, 2x26, 2 RU, Black, 12" Chassis, Half-Normal, Bussed	B52DC-HNOBT/E3 M2OO12L
E3, 2x26, 2 RU, Black, 12" Chassis, Half-Normal, Isolated	B52DC-HNOIT/E3 M2OO12L
E3, 2x26, 2 RU, Black, 12" Chassis, Half-Normal, Looped	B52DC-HNOLT/E3 M2OO12L
E3, 2x26, 2 RU, Black, 12" Chassis, Half-Normal, Switched	B52DC-HNOST/E3 M2OO12L

### REAR INTERFACE OPTIONS

The 521 Series comes with six rear interface options – E-3, E-56, E-90, ID (punchdown), D25 and Centronics 50-pin. Full views of E3, E90 and ID (punchdown) rear interfaces can be seen throughout this catalog; full views of the E-56, D25 and Centronics 50-Pin rear interfaces can be seen at [Bittree.com](http://Bittree.com).





For fast, easy ordering  
visit [bittree.com](http://bittree.com)



LPC PATCH CORDS

**AUDIO LONG FRAME (1/4")**

LPC 24 00 – 110

**Color**

- 00= Black
- 02= Red
- 04= Yellow
- 05= Green
- 06= Blue
- 07= Purple

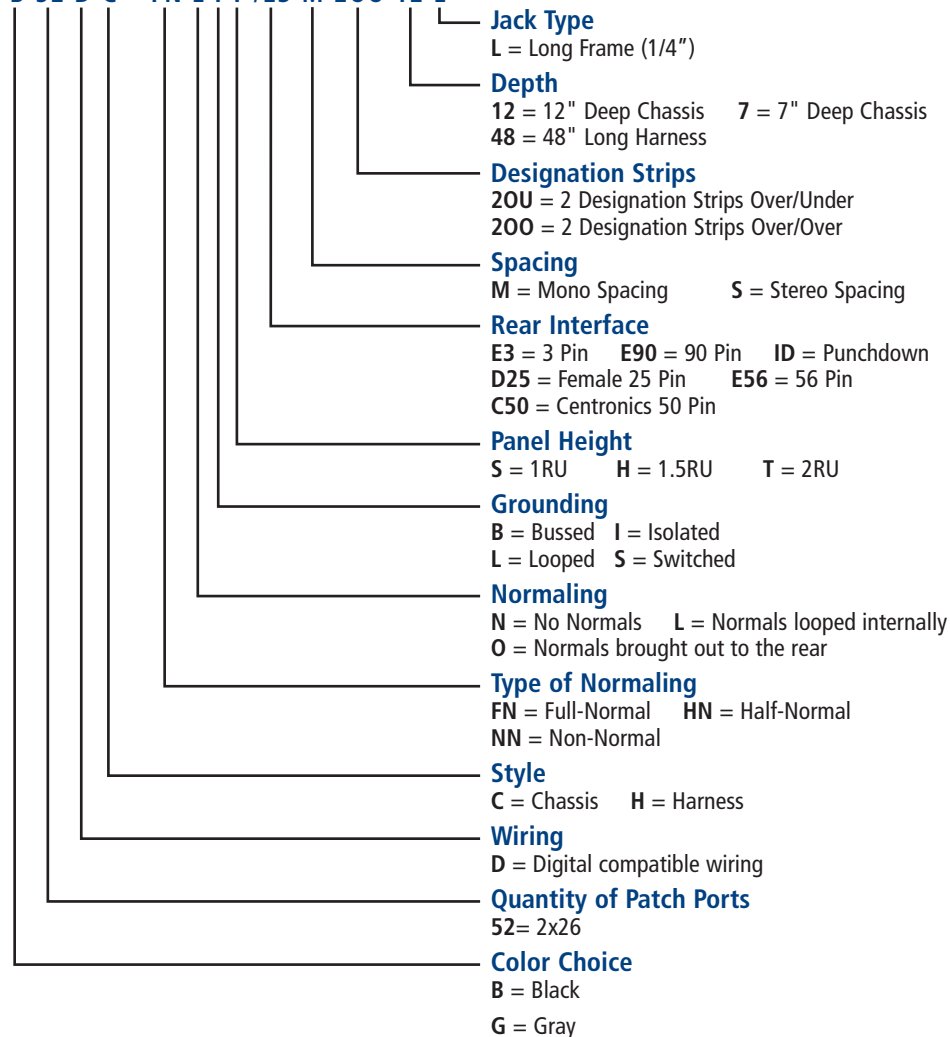
**Length**

**in Inches (cm)**

- 24 (61)
- 36 (92)
- 48 (122)
- 60 (153)
- 72 (184)

Our easy-to-use Ordering Codes let you order the exact patching system you need. As shown in the chart below, simply choose the option you want for each specification.

**B 52 D C – FN L I T /E3 M 2OU 12 L**

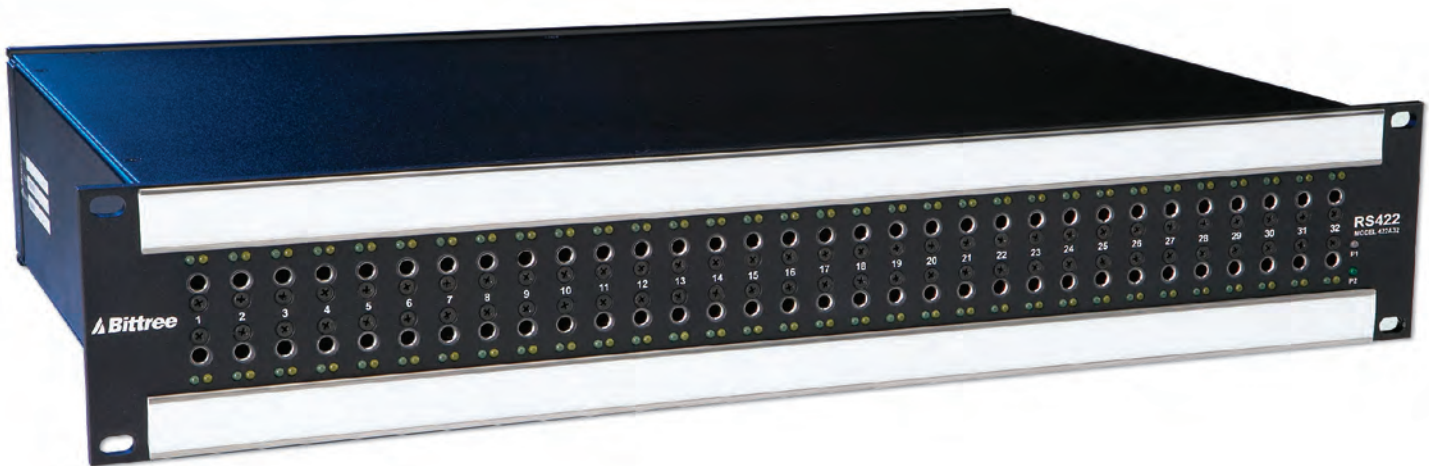


Mating connectors, contacts and normals (where applicable) are included with standard rear interface audio patchbays. Lacing bars are included with all audio patchbays.

Normals out patchbays bring the normals to the rear interface so that if desired the user may de-normal a circuit by removing a jumper. The 3-pin rear interface always brings the shield to the rear interface. To loop the ground use a three-wire jumper (Normal 3-E); to isolate the ground use a two-wire jumper (Normal 2-E). Note: E90 normals out models do not bring the ground to the normals out connector.



# RS-422 ACTIVE



## Overview

Bittree's new RS-422 64-Port Active Patchbay delivers the most significant improvement in RS-422 patching since its inception, making it easier to route, manage and verify RS-422 signals.

The innovation lies in the patchbay's auto-sensing transceivers that receive, interpret and re-transmit perfectly regenerated RS-422 signals, eliminating inductive and capacitive signal-distortion frequently imposed by traditional passive switches.

The patchbay also serves as a powerful diagnostic tool that quickly verifies the connection status between Masters and Remotes (i.e., Controllers and VTRs). The color-coded LEDs display the transmitting and receiving status of each machine plugged into the patchbay, providing a reliable way to manage and verify RS-422 signals, as well as determine which machines are set to Master or Remote.

The RS-422 64-Port Active Patchbay also increases the reliability of RS-422 system connections. Mechanically, the system will be more reliable because it uses standard, robust bantam (TT) audio patchcords – instead of “card edge” patchcords used by competing 2x32 patchbays that can cost twice as much. Electrically, the system will be more reliable because it transmits regenerated, pristine RS-422 signals.

In addition to signal-enhancement, diagnostic capabilities and increased reliability, the form-factor of the new RS-422 64-Port Patchbay is more efficient than competing models, thanks to its 2 x 32 port configuration that perfectly matches standard routers.



The RS-422 64-Port Patchbay is ideal for edit bays and machine rooms in post-production, broadcast and duplication. And because the patchbay also serves as a repeater, it excels in today's larger networked installations, helping to provide RS-422 runs of up to 8,000 feet, depending on the termination gear.

The RS-422 64-Port Active Patchbay is designed for remote-delegation protocols such as Sony and Lynx, and features easy-to-read connection status lights, a high-quality power supply, patchbay power-indicator light, DE9 female rear interface and normalled I/O paired ports. The SMPTE 207 compliant, 2 rack-unit patchbay is ruggedly built yet finely finished, and is housed in a 12" chassis with a powder-coat finish and extra-wide designation strips.

- Color-coded LEDs make it easier to route, verify and diagnose RS-422 signals
- Auto-sensing transceivers transmit perfectly re-generated RS-422 signals for longer cable runs
- Rear port auto-senses/auto-configures for master or remote operation
- Efficient 2 x 32 port configuration perfectly matches standard routers
- Uses reliable bantam audio patchcords
- SMPTE 207M compliant; accommodates remote delegation protocols such as Sony and Lynx
- Easy-to-read connection-status lights and patchbay power indicator light
- Includes high-quality, medical-grade power supply; optional dual power supply for on-air applications
- Rugged nickel-plated, cold-rolled steel box-frame jack construction; jacks rated to 30,000 minimum insertion cycles
- Panels made from 3/16" solid aluminum with black durable powder-coat finish
- 2 x 32 ports, D9 female rear interface, 2 RU, 12" deep chassis; Extra-wide designation strips
- Copper-nickel-silver alloy leaf springs with gold-alloy cross bar switching contacts and nickel-plated sleeve bushings
- Normal I/O paired ports

DESCRIPTION	PRODUCT NUMBER
RS-422 64-Port Active Patchbay, with single power supply	422A32
RS-422 64-Port Active Patchbay, with dual power supply	422A32-D

## Port Patchbay Specifications (Fully compliant with EIA-422-A standards)

### Rear Interface Connections

Signal: DE9 Female  
 Life Cycle: 10,000 Insertions Cycles  
 Power: Locking Mini Power Connector L722A

### Front Interface Connections

Signal: Bantam (TT) jacks  
 Life Cycle: > 30,000 Insertion Cycles  
 Maximum Input-to-Output Propagation Delay: 1250 ns  
 Patchcord: Standard Bantam (TT) patchcord

### Power Requirements

Input: 100-120V AC, 47-63Hz; 0.75 amps  
 Output: 5 + 0.1 volts DC Regulated; 2.4 amps max  
 Power Supply Connector: Locking Mini Power Plug S760K

### Environmental

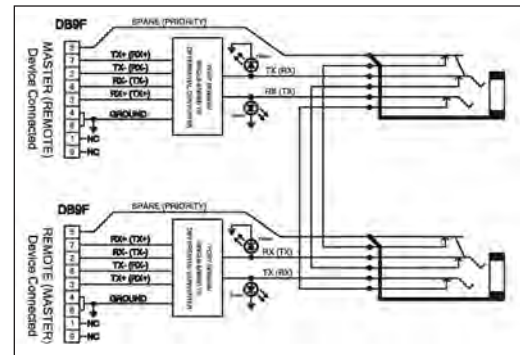
Operating Temperature: 0°C to 70°C  
 Storage Temperature: - 55°C to 85°C



Bantam (TT) Patchcord

AUDIO BANTAM (TT)  
 PRODUCT NUMBER MATRIX  
 BPC 24 00 -110

Length in Inches (cm)	Color
24 (61)	00= Black
36 (92)	02= Red
48 (122)	04= Yellow
60 (153)	05= Green
72 (184)	06= Blue
	07= Purple



Product Schematic



### DB9 Slim Hood

The profile of the DB9 Slim Hood allows users to fit up to 32 connectors in each row and take advantage of all 64 ports in the new RS-422 64-Port Active Patchbay.

The DB9 Slim Hood is easy to assemble, comes with a rugged tie-wrap strain relief to ensure solid connections, and features slotted thumb screws for maximum convenience.

### Part Numbers

DB9Slim1 – one unit      DB9Slim16 – set of 16  
 DB9Slim8 – set of 8      DB9Slim32 – set of 32

DB9 Slim Hoods not included with RS-422 64-Port Active Patchbay.



### RS-422 64-Port Active Patchbay Power Supply

This high-quality power supply was designed exclusively for the RS-422 64-Port Active Patchbay. Screw lock-downs ensure power supply stays connected. Low-profile wall-plug helps power supply stay plugged in. 72" cord, 5 volt, 2.4 amp.

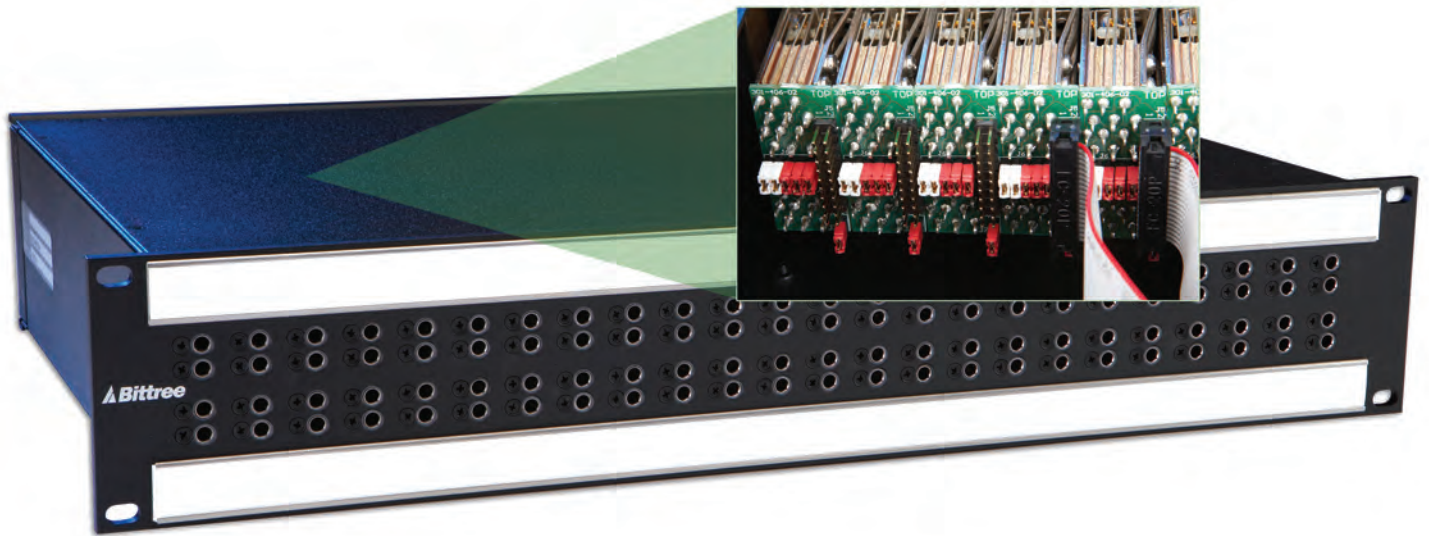
### Part Number

PS72S

Power Supply(s) included with RS-422 64-Port Active Patchbay.



# RS-422 PROGRAMMABLE



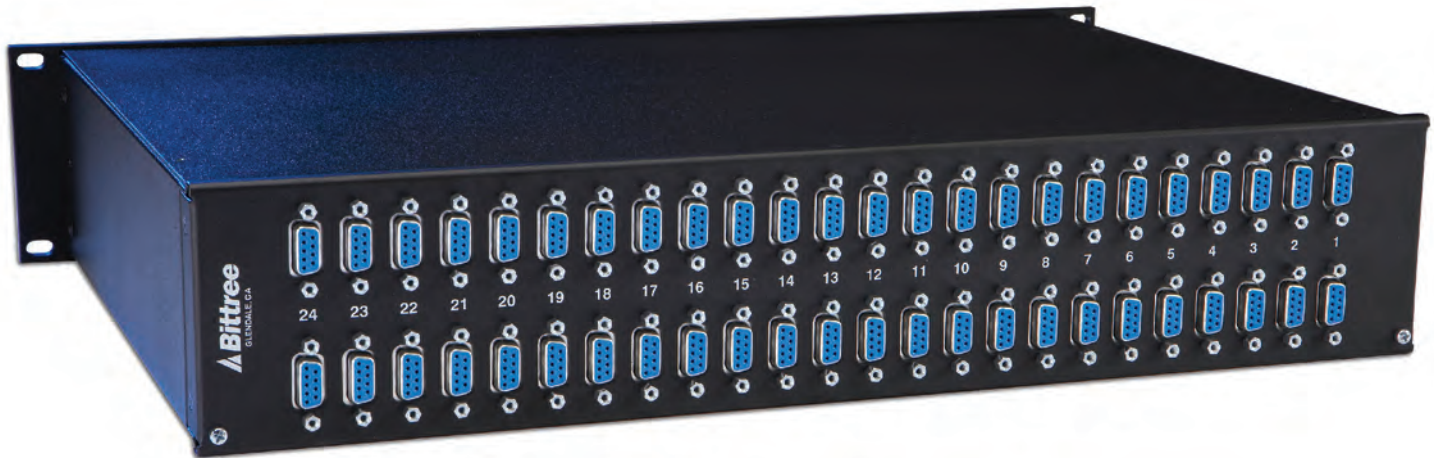
## Overview

Our new RS-422 Programmable Data Patchbay, expressly designed to meet the needs of RS-422 serial data patching typically required in television broadcast or postproduction facilities, allows you to switch circuits between full-normal and non-normal and back again – quickly, easily and reliably.

The RS-422 Programmable Data Patchbay is as easy as it is adaptable. To program the Normals for individual circuits, users just need to insert or remove the programming shunts located underneath the patchbay dust cover. When the shunts are inserted, the circuit will be full-normal; when the shunts are removed, the circuit will be non-normal.

This flexibility means the RS-422 Programmable Data Patchbay can serve as the foundation for virtually any new, reconfigured or legacy installation. It also means that regardless of any design changes that arise during installation, it can always be re-programmed as needed right on the spot.

The end result is that the RS-422 Programmable Data Patchbay allows integrators and installers to quickly re-configure patching systems, accommodate customer change-orders, and speed service-calls. It also allows system designers to more confidently assemble equipment lists and more accurately develop quotes earlier in the proposal process.



The RS-422 Programmable Data Patchbay features six-wire circuits, accommodating RS422 signals – and providing two extra circuits for additional applications and protocols. The patchbay handles bi-directional signals such as RS-422, RS-232 and other general purpose interface applications.

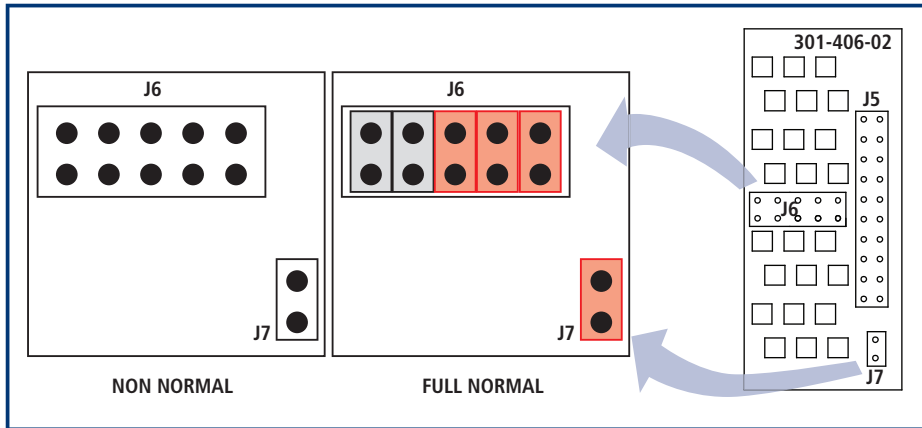
The RS-422 Programmable Data Patchbay features a D9 female rear interface and is SMPTE 207 compliant. The 2 rack-unit patchbay is ruggedly built yet finely finished, and is housed in a 12” chassis with a powder-coat finish and extra-wide designation strips.

The RS-422 Programmable Data Patchbay is ideal for edit bays and machine rooms in post-production, broadcast and duplication, and can also accommodate remote-delegation protocols such as Sony and Lynx.

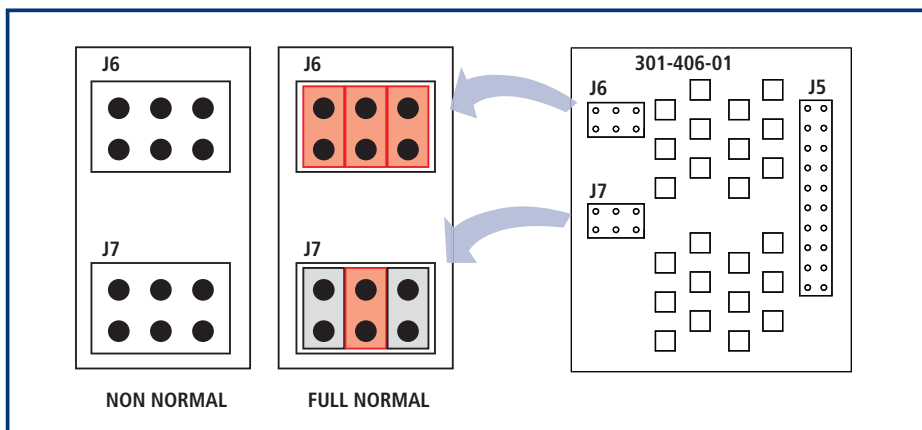
All Bittree data patching systems are held to strict electrical and mechanical specifications to guarantee exceptional performance in traditional serial data applications. Ideal for edit system to VTR patching; remote control delegation (e.g., Sony and Lynx systems); computer data interconnection, control panel re-routing; and central distribution of 422 signals.

- Programming shunts allow users to easily change between full-normal and non-normal circuits
- Red/white programming shunts are located inside, under the patchbay dust cover. Insert shunts to make the circuit full-normal; remove shunts to make the circuit non-normal.
- Robust six-wire circuits accommodate RS422 signals – and provide two extra circuits for additional applications and protocols
- Handles bi-directional signals such as SMPTE 207M RS-422, RS-232 and other general purpose interface applications
- Available formats include 2 x 6 and 2 x 12 in 1RU, and 2 x 12, 2 x 18 and 2 x 24 in 2 RU, all in a 12” deep chassis
- Precision-stamped reinforced steel jack frame; jacks rated to 30,000 minimum insertion cycles
- Panels made from 3/16” solid aluminum with a durable powder-coat finish
- Black or gray front panel
- D9 female rear interface
- Large user-friendly designation strips





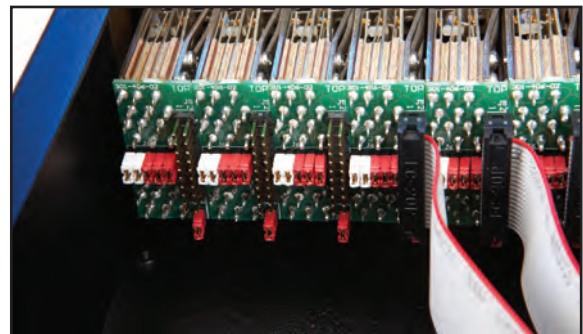
**2 RU Size  
Product Number Contains:  
"FI6T" or "NI6T"**



**1 RU Size  
Product Number Contains:  
"FI6S" or "NI6S"**

### How to Identify an RS-422 Programmable Data Patchbay:

RS-422 Programmable Data patchbays can be identified by their product number. Locate the product number sticker toward the back of the left side panel. If the product number contains either an "FI" or "NI" in the product number, it is programmable.



### How to Change the Programming for a Circuit:

1. Unscrew the screws along the top edges and take off the patchbay dust cover. Locate the Internal PCB Boards inside, which are right behind the back of the jacks (for a better view, turn the rear of the patchbay toward you). There are 24 PCB Boards; each one holds one circuit.
2. Programming options are full normal or non-normal. Find your desired configuration in the diagram above.
3. Ample red and white shunts are provided with every programmable patchbay. Arrange the programming shunts on the PCB Boards to match the appropriate diagram. When the programming shunts are inserted, the circuit will be full-normal; when the shunts are removed, the circuit will be non-normal. Note: Each circuit can be programmed independently.
4. Replace the dust cover.

For fast, easy ordering visit [bittree.com](http://bittree.com)

**DUAL BANTAM (TT)**

**DPC 24 00**

**Color**

- 00= Black
- 02= Red\*
- 04= Yellow\*
- 05= Green\*
- 06= Blue\*

**Length in Inches (cm)**

- 24 (61)
- 36 (92)
- 48 (122)
- 60 (153)
- 72 (184)

\*Available in 24" and 36" only

**DUAL BANTAM (TT) SIX-WIRE**

**GPI 24 00**

**Color**

- 00= Black

**Length in Inches (cm)**

- 24 (61)
- 36 (92)



**DPC PATCH CORDS**

GPI Patch Cords have gray overmold to differentiate from DPC Patch Cords.

Our easy-to-use Ordering Codes let you order the exact patching system you need. As shown in the charts below, simply choose the option you want for each specification.

**B 422 – FI6 T / 24**

**Number of Circuits**

- 6 = 2x6
- 12 = 2x12
- 18 = 2x18
- 24 = 2x24

**Panel Height**

- S = 1RU
- T = 2RU

**Number of Switched Normals**

- FI6 = 6 Circuits Normal (RS422+2/GPI)
- NI6 = 6 Circuits Non-Normal (RS422+2/GPI)

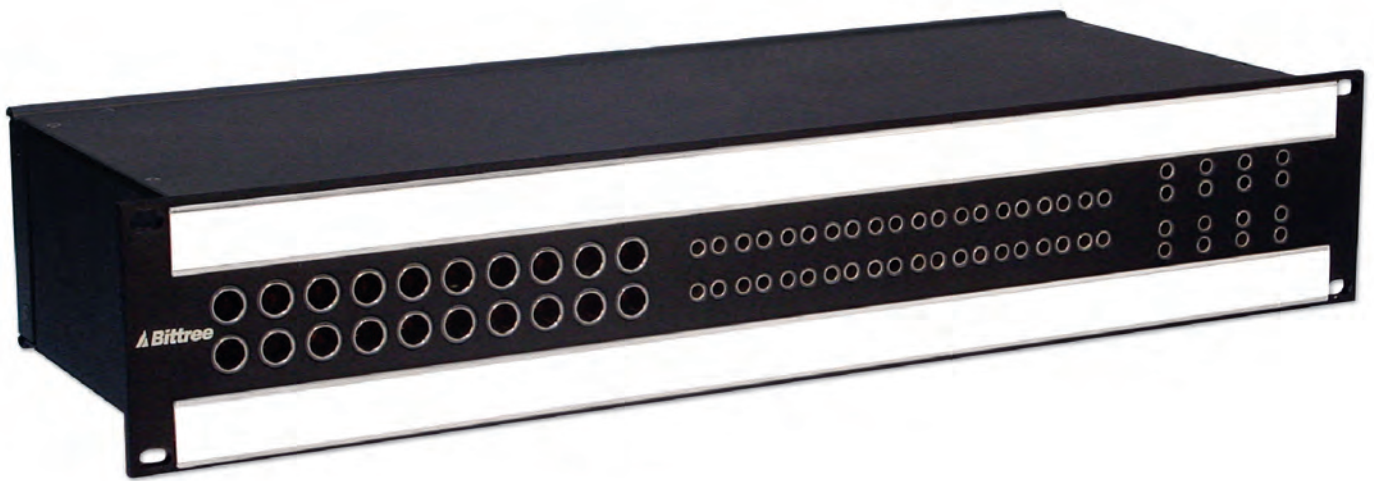
**Type**

- 422 = RS422/GPI Patching

**Color Choice**

- B = Black
- G = Gray

# INTEGRATED



## Overview

The revolutionary idea behind Bittree's Integrated Patchbays is to combine the three main patching requirements – audio, video and data – into a single integrated unit.

Our Integrated patchbays therefore have the same professional quality and finish as the rest of our line, avoiding the loose pieces and sloppy look of modular patchbays offered by other companies.

Integrated patchbays are ideal for environments such as edit rooms and professional home studios that have multiple types of patching requirements (i.e., audio, video and data), but that have a minimal number of patching requirements. They are a cost-effective way to have the convenience, functionality and reliability of a multiple-patch system, without having to purchase three separate patchbays.



### INTEGRATED PATCHBAY FEATURES: VIDEO

- High-bandwidth performance for SD/SDI, HD/SDI, and 3 Gb/s applications available
- Jacks conform to SMPTE 292M and SMPTE 424M
- Available in both Mini-WECO and WECO formats
- BNC rear interface
- True 75ohm impedance with low return loss
- Jacks are isolated from the panel
- Jacks may be ordered in four different configurations:
  - o Dual self-normaling, terminating (2MWTHTD)
  - o Dual self-normaling, non-terminating (2MWNHD)
  - o Single non-normaling, terminating (1MWTHTD)
  - o Single non-normaling, non-terminating (1MWNHD)

### INTEGRATED PATCHBAY FEATURES: DATA

- Handles bi-directional signals such as SMPTE 207M RS-422, RS-232 and other general purpose interface applications
- Robust six-wire circuits accommodate RS422 signals – and provide two extra circuits for additional applications and protocols
- Jacks rated to 30,000 minimum insertion cycles
- Precision-stamped reinforced steel jack frame
- Available as normaled or non-normaled
- D9 female rear interface

### INTEGRATED PATCHBAY FEATURES: AUDIO

- Bantam (TT) or Long Frame (1/4”) Audio
- Jacks rated to 30,000 minimum insertion cycles
- Copper-nickel-silver alloy leaf springs with gold-plated cross bar switching contacts and nickel-plated sleeve bushings
- Precision-stamped reinforced steel jack frame
- Gold-plated contacts used in E3 rear interface
- Wired with low-capacitance, AES/EBU-rated, shielded, twisted pair
- Available in full normal, half-normal or non-normal
- Mating audio connectors and contacts are included

### INTEGRATED PATCHBAY FEATURES: PANEL

- Available in 1.5 or 2 rack units (RU)
- Panels made from 3/16” solid aluminum with a durable powder-coat finish
- 12” or 7” deep chassis
- Black or gray front panel
- Large user-friendly designation strips

DESCRIPTION	PRODUCT NUMBER
<b>Bantam (TT) Audio, 12" Deep Chassis, Mono Spacing</b>	
Video 2x12 (1WN); Audio 2x24 (NNNIT/E3)	BIPS-73
Video 2x12 (2WN); Audio 2x24 (FNLIT/E3)	BIPS-54
Video 2x12 (2WT); Audio 2x24 (FNLBT/E3)	BIPS-67
Video 2x12 (2WT); Audio 2x24 (FNLBT/E3)	BIPS-109
Video 2x12 (2WT); Audio 2x24 (FNLIT/E3)	BIPS-71
Video 2x16 (2MWT); Audio 2x16 (FNLIT); Data 2x4 (FI6)	BIPS-142
Video 2x16 (2MWT); Audio 2x16 (HNLIT); Data 2x4 (FI6)	BIPS-156
<b>Bantam (TT) Audio, 12" Deep Full Chassis, Stereo Spacing</b>	
Video 2x10 (1WN); Audio 2x20 (FNLIT/E3); Data 2x4 (NNT)	BIPS-90
Video 2x10 (1WN); Audio 2x20 (NNNIT/E3); Data 2x4 (NNT)	BIPS-1
Video 2x10 (1WT); Audio 2x20 (FNLIT/E3); Data 2x4 (N4T)	BIPS-149
Video 2x10 (1WT); Audio 2x20 (NNNIT/E3); Data 2x4 (NNT)	BIPS-103
Video 2x10 (2WN); Audio 2x20 (FNLIT/E3); Data 2x4 (N4T)	BIPS-2
Video 2x10 (2WN); Audio 2x20 (HNLBT/E3); Data 2x4 (N4T)	BIPS-91
Video 2x10 (2WN); Audio 2x20 (HNLIT/E3); Data 2x4 (N4T)	BIPS-3
Video 2x10 (2WT); Audio 2x20 (FNLBT/E3); Data 2x4 (N4T)	BIPS-110
Video 2x10 (2WT); Audio 2x20 (FNLBT/E3); Data 2x4 (NNT)	BIPS-65
Video 2x10 (2WT); Audio 2x20 (FNLIT/E3); Data 2x4 (N4T)	BIPS-4
Video 2x10 (2WT); Audio 2x20 (FNLLT/E3); Data 2x4 (N4T)	BIPS-164
Video 2x10 (2WT); Audio 2x20 (HNLBT/E3); Data 2x4 (N4T)	BIPS-174
Video 2x10 (2WT); Audio 2x20 (HNLIT/E3); Data 2x4 (N4T)	BIPS-7
Video 2x12 (2WT); Audio 2x24 (FNLBT/ID)	BIPS-116
Video 2x12 (2WT); Audio 2x24 (FNLLT/E3)	BIPS-112
<b>Bantam (TT) Audio, 7" Deep Full Chassis, Stereo Spacing</b>	
Video 2x10 (2WT); Audio 2x20 (FNLIT/E3); Data 2x4 (N4T)	BIPS-102
Video 2x12 (2WN); Audio 2x24 (FNLIT/E3)	BIPS-5
Video 2x12 (2WN); Audio 2x24 (FNLST/E3)	BIPS-137
<b>Bantam (TT) Audio, 5" Deep Half Chassis, Mono Spacing</b>	
Video 2x12 (2WNHD); Audio 2x24 (FNLIT/E3)	BIPS-128
Video 2x12 (2WTHD); Audio 2x24 (HNLIT/E3)	BIPS-133
Video 2x16 (2MWTHD); Audio 2x24 (FNLIT/E3)	BIPS-74
Video 2x16 (2MWTHD); Audio 2x24 (HNLBT/E3)	BIPS-182
<b>Bantam (TT) Audio, 5" Deep Half Chassis, Stereo Spacing</b>	
Video 2x12 (2WNHD); Audio 2x24 (HNLIT/E3)	BIPS-89
Video 2x12 (2WTHD); Audio 2x12 (FNLIT/E3)	BIPS-51
Video 2x12 (2WTHD); Audio 2x24 (FNLIT/E3)	BIPS-82
<b>Long Frame (1/4") Audio, 5" Deep Half Chassis, Mono Spacing</b>	
Video 2x12 (1WNHD); Audio 2x12 (NNNIT/E3)	BIPS-63
Video 2x12 (2WNHD); Audio 2x12 (FNLIT/E3)	BIPS-55
Video 2x12 (2WNHD); Audio 2x12 (FNLIT/ID)	BIPS-136
Video 2x12 (2WNHD); Audio 2x12 (HNLIT/E3)	BIPS-78
Video 2x12 (2WTHD); Audio 2x12 (FNLIT/E3)	BIPS-165

HB VIDEO

E-SERIES VIDEO

COMP. VIDEO

AES AUDIO

AUDIO TT

AUDIO 1/4"

RS-422 ACTIVE

RS-422 PROG.

INTEGRATED

ACCESSORIES



# ACCESSORIES

## VIDEO WECO PATCHCORDS & LOOPING PLUGS

### WECO LOOPING PLUGS LP 75 00

- Color**  
00= Black  
02= Red  
04= Yellow  
05= Green  
06= Blue  
08= Gray



### WECO COMPONENT PATCH CORDS CPC 24 00 - 75

- Color**  
00= Black
- Length in Inches (cm)**  
24 (61)  
36 (92)  
48 (122)  
60 (153)  
72 (184)



### WECO PATCH CORDS VPC 24 00 - 75

- Color**  
00= Black  
02= Red  
04= Yellow  
05= Green  
06= Blue  
07= Purple
- Length in Inches (cm)**  
24 (61)  
36 (92)  
48 (122)  
60 (153)  
72 (184)



## VIDEO MINI-WECO PATCHCORDS & LOOPING PLUGS

### MINI-WECO LOOPING PLUGS LPM 75 06

- Color**  
06 = Blue



### MINI-WECO COMPONENT PATCH CORDS CPCM 24 00 - 75

- Color**  
00= Black
- Length in Inches (cm)**  
24 (61)  
36 (92)  
48 (122)  
60 (153)  
72 (184)



### MINI-WECO PATCH CORDS VPCM 24 00 - 75

- Color**  
00= Black  
02= Red  
04= Yellow  
05= Green  
06= Blue  
07= Purple
- Length in Inches (cm)**  
24 (61)  
36 (92)  
48 (122)  
60 (153)  
72 (184)



## AUDIO BANTAM (TT) PATCHCORDS

### AUDIO BANTAM (TT) BPC 24 00 - 110

- Color**  
00= Black  
02= Red  
04= Yellow  
05= Green  
06= Blue  
07= Purple

- Length in Inches (cm)**  
24 (61)  
36 (92)  
48 (122)  
60 (153)  
72 (184)



### DUAL BANTAM (TT) DPC 24 00

- Color**  
00= Black  
02= Red  
04= Yellow  
05= Green  
06= Blue  
07= Purple

- Length in Inches (cm)**  
24 (61)  
36 (92)  
48 (122)  
60 (153)  
72 (184)

### DPC PATCH CORDS



## AUDIO LONG FRAME (1/4") PATCHCORDS

### AUDIO LONG FRAME (1/4") LPC 24 00 - 110

- Color**  
00= Black  
02= Red  
04= Yellow  
05= Green  
06= Blue  
07= Purple

- Length in Inches (cm)**  
24 (61)  
36 (92)  
48 (122)  
60 (153)  
72 (184)

### LPC PATCH CORDS



For fast, easy ordering  
visit [bittree.com](http://bittree.com)



## Tools

K2MA-01	Crimp Tool for EPin
06-1877-04	Extraction Tool for EPin
06-1742-04	Insertion Tool for EPin
PT1	Punchdown Tool for ID Pins
RT1S	BNC Extraction Tool, 6"
RT1L	BNC Extraction Tool, 12"
RT1XL	BNC Extraction Tool, 22"
RTMW1L	BNC Extraction Tool, 12" (Mini-WECO)

## Adapters

AD1W	BNC to WECO Patch
ADMW12	BNC to Mini-WECO Patch
TCS-418	SVHS to two BNCs

## Connectors

E3M	Male 3 Pin Connector
E90MS	Male w/Screw 90 Pin Connector
E90HOOD	90 Pin Hood
EPIN	Pin (Crimp type)
K51002	Punchdown Housing (Red)
K51009	Punchdown Housing (White)
K51000	Punchdown Housing (Black)
K514	Punchdown Contact

## Jumpers

NORMAL-2E	Two-Wire E3 Normal Jumper (Isolated Ground)
NORMAL-3E	Three-Wire E3 Normal Jumper (Looped Ground)
NORMAL-48	48-Wire Normal Jumper
382811-2	Programmable Series Shunts (Red)
382811-9	Programmable Series Shunts (White)

## Lacing Bars

LB-17500	6" Deep Lacing Bar
LB175-3	3" Deep Lacing Bar
LB-1900	19" Wide Rack-Rail Lacing Bar

06-1742-04



RT1L

06-1877-04



K2MA-01



AD1W



ADMW12



PUNCHDOWN  
HOUSINGS & PINS

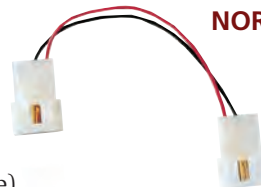


E90MS



E3M

EPIN



NORMAL-2E



NORMAL-48

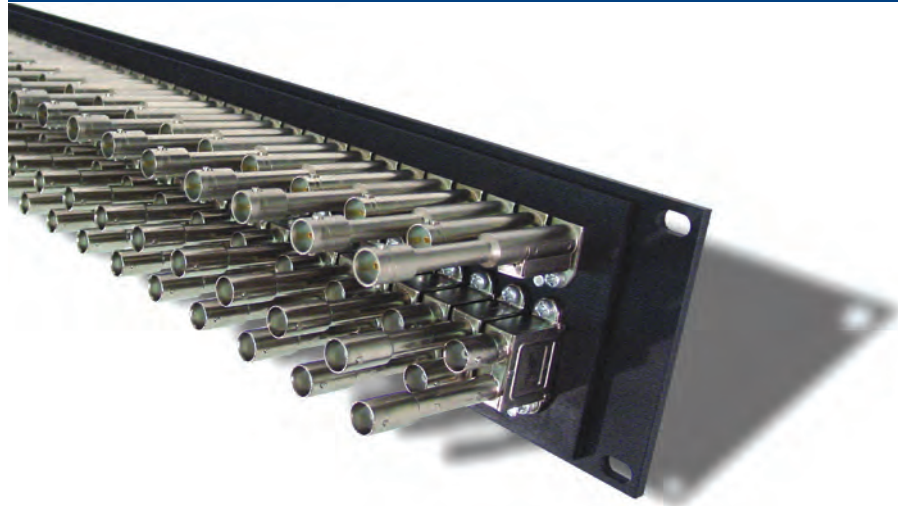


PROGRAMMING SHUNTS



LB-1900

# High-Performance Patching Systems



Our goal is to provide members of the broadcast, production, post-production and A/V industries with reliable high-performance patching systems. Perhaps the only thing that matches the quality of our products is the level of our service.

## **Comprehensive Product Line**

This catalog contains the products and part numbers most frequently requested by our customers. Please understand this is a partial list only, and that we have hundreds of products not listed that are also available.

If you have a special request, please call your Bittree Sales Consultant. Because we design, manufacture and test all our products right here in our facility, we can produce a wide range of configurations quickly, efficiently and cost-effectively.

To find out about other Bittree products and accessories, just call your Bittree Sales Consultant.

## **Special Services for System Designers and System Integrators**

We offer special services to system designers and integrators. If you're a system designer, we'll work with you to develop your proposals. We'll provide you with fast, complete quotes, web-based CAD files, wiring schematics, and other valuable forms of documentation. At Bittree, we'll work hard to help you win your project.

If you're a system integrator, you're just as important to Bittree. We'll provide you with all the instructions, diagrams and programming notes you'll need to build the project quickly, efficiently and at a profit. Plus, you can count on us to quickly deliver any revised or additional product that may be needed due to last-minute design changes.

## **Convenient Opportunities to Review Our Products**

Bittree exhibits at all the major broadcasting and electronics tradeshows. Each year you'll find us at National Association of Broadcasters (NAB) and International Communications Industry Association (InfoComm), as well as other smaller shows throughout the year. For a list of shows we're displaying at, as well as to obtain complementary passes, visit [www.bittree.com](http://www.bittree.com). We encourage you to visit our booth and meet our Sales Consultants. We'll be glad to show you our products, explain our systems, and advise you on developing the most efficient and cost-effective patching solution.

## **Expanded, Interactive Web Site**

The new Bittree.com web site can help make your system designs better, your installations smoother, your documentation easier – and your projects more profitable.

Our newly expanded web site contains list pricing, product overviews, product features, technical specs, installation drawings, rack elevation CAD files, normal/ground schematics, front/rear panel drawings and programming instructions.

You'll also find the new Patchcord Store at Bittree.com, where you can order patchcords, tools and accessories at 15% discounts and request overnight delivery.





Call Toll Free 800.500.8142 Fax 818.500.7062 [www.bittree.com](http://www.bittree.com)