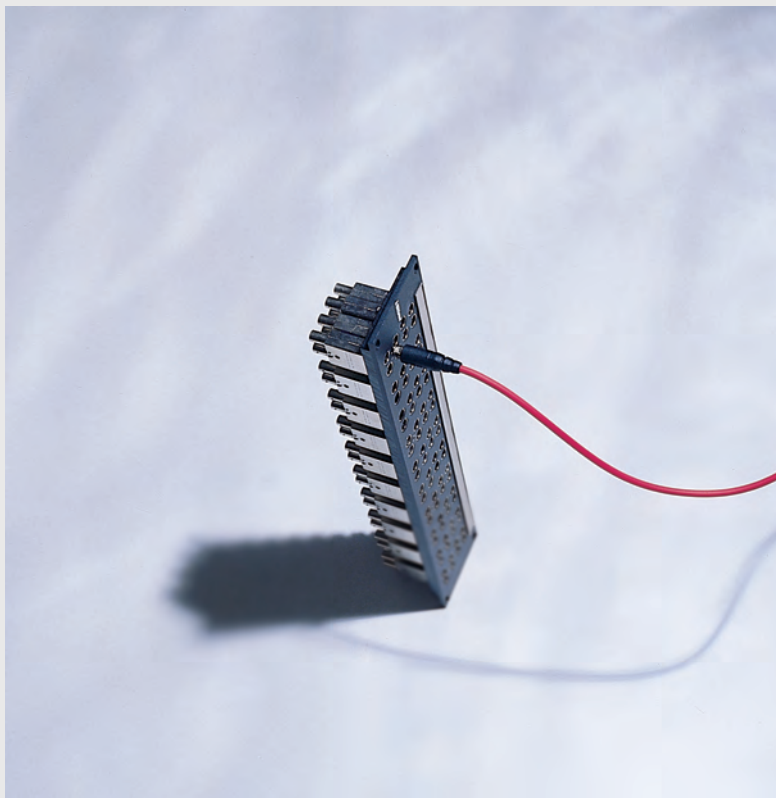




*High
Performance
Patching
Systems*



V I D E O

A U D I O

D A T A

About Bittree

It has been more than 20 years since Bittree first began making patching systems for the broadcast and entertainment industries. Since that time new technologies have extensively altered the environment in which we work and produce. A wealth of new signal formats have created demands for neoteric and exacting interconnection systems. Throughout this transition, Bittree's mission to be the solidifying factor in patching systems and components remains consistent.

Bittree uses a unique crimp on, snap-in, unisex contact



About Innovation

Bittree is committed to continually improving the patching experience for a broad base of users. The solid performance of our systems is attained in part through research and development of the individual components. Innovations are realized through careful selection of base materials, processing techniques and construction methodology. This meticulous attention to detail serves to create superior products that perform beyond conventional expectations.

Further innovations are achieved with our new series of patch cords. Greater flexibility, custom designed cabling, and precision connections yield dependable long-life patch cords for use in all audio and video environments.

Bittree's piece de resistance core-level innovation is exemplified by our original 3-pin rear connection interface. This proprietary component employs a

proven "tuning fork" hermaphroditic contact, while incorporating the positive aspects of crimp-on snap-in technology. The resulting part goes beyond insulation displacement or conventional soldering techniques. It is very reliable, easy to install, quick to re-configure and friendly to the installer.

We've created unique patch panels from non-metallic materials such as Corian and Avonite, to fit within studio interior design guidelines. "Combination" patch panels have answered multi-media environment space and functionally requirements. Greater system-level demands set forth by design engineers have been met by modifying existing panels to conform to rigid specifications. And the new digital transmission standards have been met with new jacks, patch cords and interconnection schemes.

About Quality

Bittree Patching System products are designed and tested to meet rigid quality standards to ensure their long term dependability. Only the best conductive and insulating materials are specified—backed up by stringent assembly and test procedures. Individual components are selected from established industry standard sources.

Bittree's experience and team commitment to quality allows for short turn-around on standard or custom products, from the smallest to the largest projects. But in every case, customer satisfaction is a major priority.

About Service

All Bittree patching system components are selected from established industry standard sources. Only the very best materials are specified and employed—all are backed up by stringent design, assembly and bench analysis protocols.

Then, to ensure their long term functionality and dependability, each Bittree product is rigorously tested—not only to meet the industry's strict standards of quality, but also to measure up to the specific demands and high expectations of operators and technicians in the field.

Simply stated, total customer satisfaction is guaranteed.

INTRODUCING BITTREE PROGRAMMABLE PATCHBAYS

Bittree programmable audio patchbays are available in both TT (Bantam) and Longframe (1/4") versions. High-end steel frame jacks with gold normaling cross points are used in both versions. The Bittree jack is rated to exceed 20,000 insertion cycles.

Each vertical TT or Longframe circuit can be programmed to full, half, or non-normal by configuring dip shunts, or "suitcase" jumpers, located underneath the stainless steel designation stripes. Likewise, each circuit's grounding scheme can be programmed isolated, looped, or bussed to the common drain via the same shunt system.

All programming can be done from the front of the patchbay. There is no need to go behind the rack to adjust the normals.

969 Series



489 Series

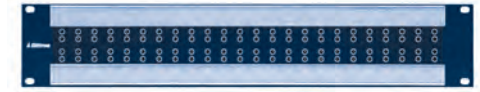
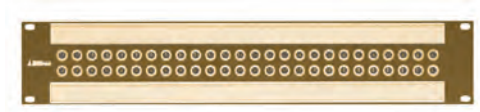
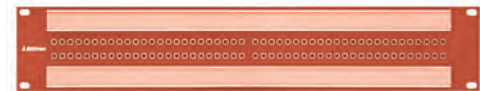
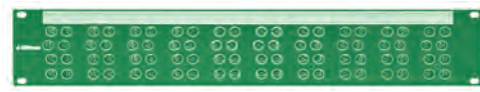


Call 800.500.8142 for the technical bulletin, or visit our website at www.bittree.com for more information.



Picture shown does not show designation strips that cover the programming shunts.

B I T T R E E p a t c h i n g s y s t e m s



Special 3, 4



Video 5, 6



Audio TT 7, 8



**Audio (1/4")
Long Frame** 9, 10



Serial Data 11, 12



**Mechanicals
Schematics** 13, 14

Important Notice:
All possible care has been taken in preparing this catalog. Statements and specifications are believed to be true but are not guaranteed and we are not responsible for any inaccuracies. Catalog data should not be used to establish specification limits, nor should catalog data be used alone as the basis for design.

Bittree reserves the right to change or alter specifications or materials without notice, provided the function and performance of the product remains reasonably the same or is improved.

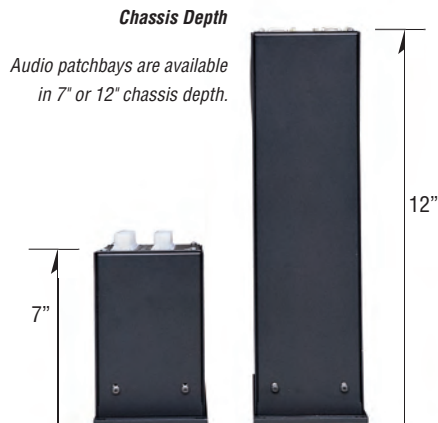
SPECIAL PATCHING SYSTEMS

Special patching systems have been created via direct input from our extensive customer base.

Frequently we are asked to modify our standard product to meet a customer's design criteria. If the request is within our scope, our customs department can turn it around in a surprisingly short time.

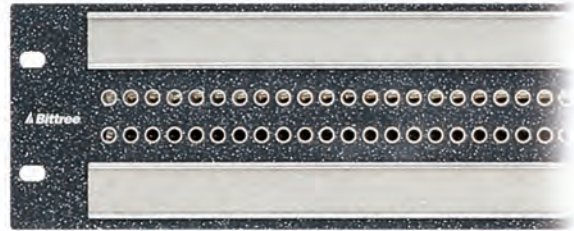
Many of these specials have had the potential for transmigration into standard product and are subsequently featured in this section. Other designs are too customer specific and are built to order as needed. However, Bittree welcomes custom work and will respond to individual requests accordingly.

To a large degree, many of our new designs are based on customer input and our experience with custom products. The creation of 'specials' requires an intense effort from the get go. Customer interaction coupled with active participation of talented people creates a team-oriented approach that encourages a flawless product, even in limited production runs. This spirit clearly represents Bittree's disposition towards customer satisfaction.



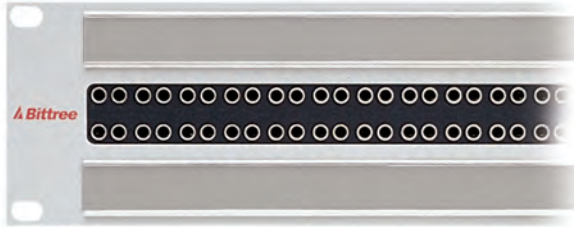
Wave of The Future

Synthetic materials and special paints represent innovative new directions for patchbay finishes.



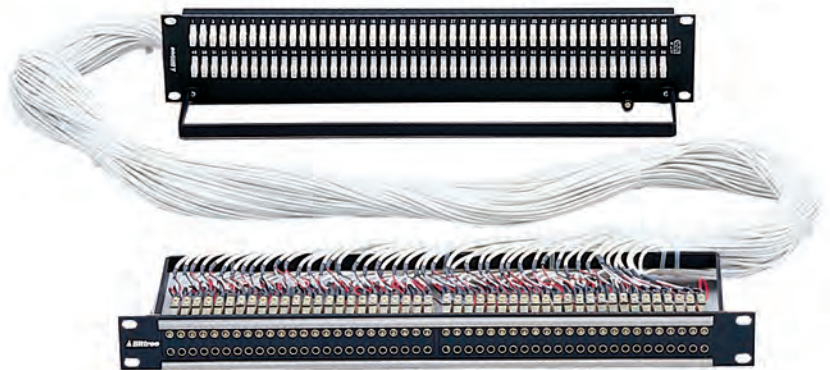
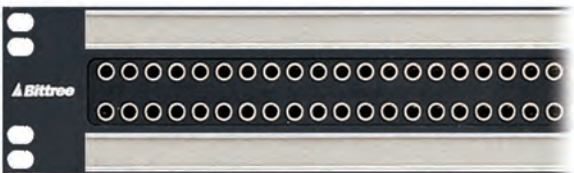
Bittree Standard Gray

Most of the patchbays shown in our catalog are also available in a hi-tech gray. Non-standard colors are available by special request at nominal cost.



1 1/2 RU Rack Mount

Many of the patchbays found in our catalog are available in 1 1/2 RU versions with a variety of standard and custom rear-interfaces.



Harness & Cable Assemblies

Harness assemblies for audio patchbays are built in 4 ft. standard lengths. Different lengths are available on special order.

**IPS PATCH
3-WAY HYBRID
PATCHBAYS
AUDIO/VIDEO/DATA**

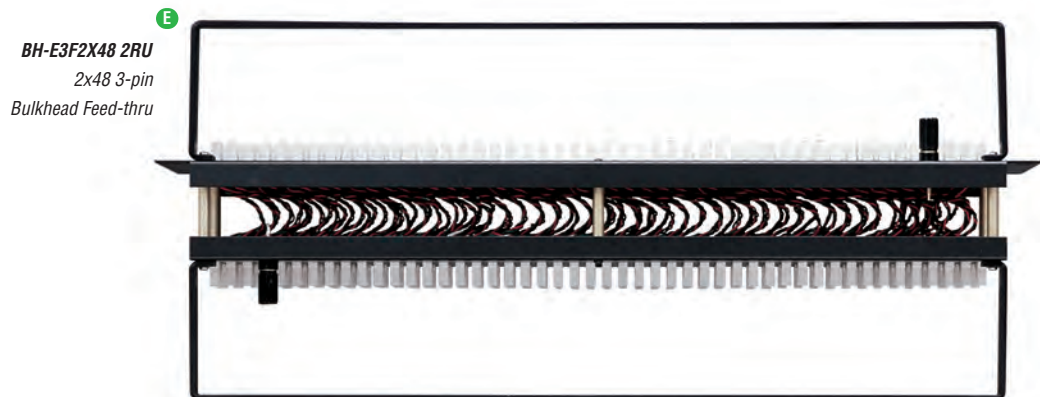
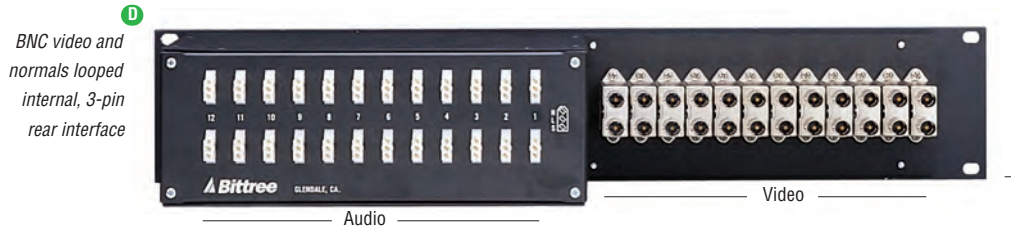
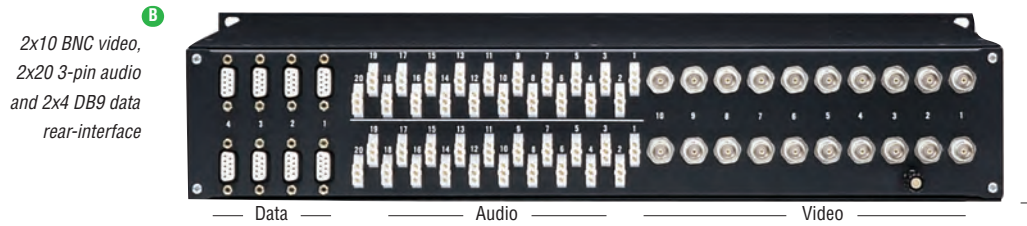
This combination two rack unit panel is perfect for installations where a limited number of patch points are required. It offers a combination of audio, analog and/or digital video, and serial data patching. The space savings is ideal where real estate is at a premium. The innovative patchbay provides easy access and local area panel commonality for related signal paths.

Standard configurations are full-normaled and non-normaled. Other configurations are available.

**CUSTOM
PATCHING SYSTEM
CABLE ASSEMBLIES**

Bittree specializes in custom cable assemblies for fast installs. This in-house capability grew out of customer demand for reliable pre-wired cable assemblies and harnesses.

See pages 13 & 14 for mechanical drawings & schematics.



SERIAL DIGITAL PATCHING

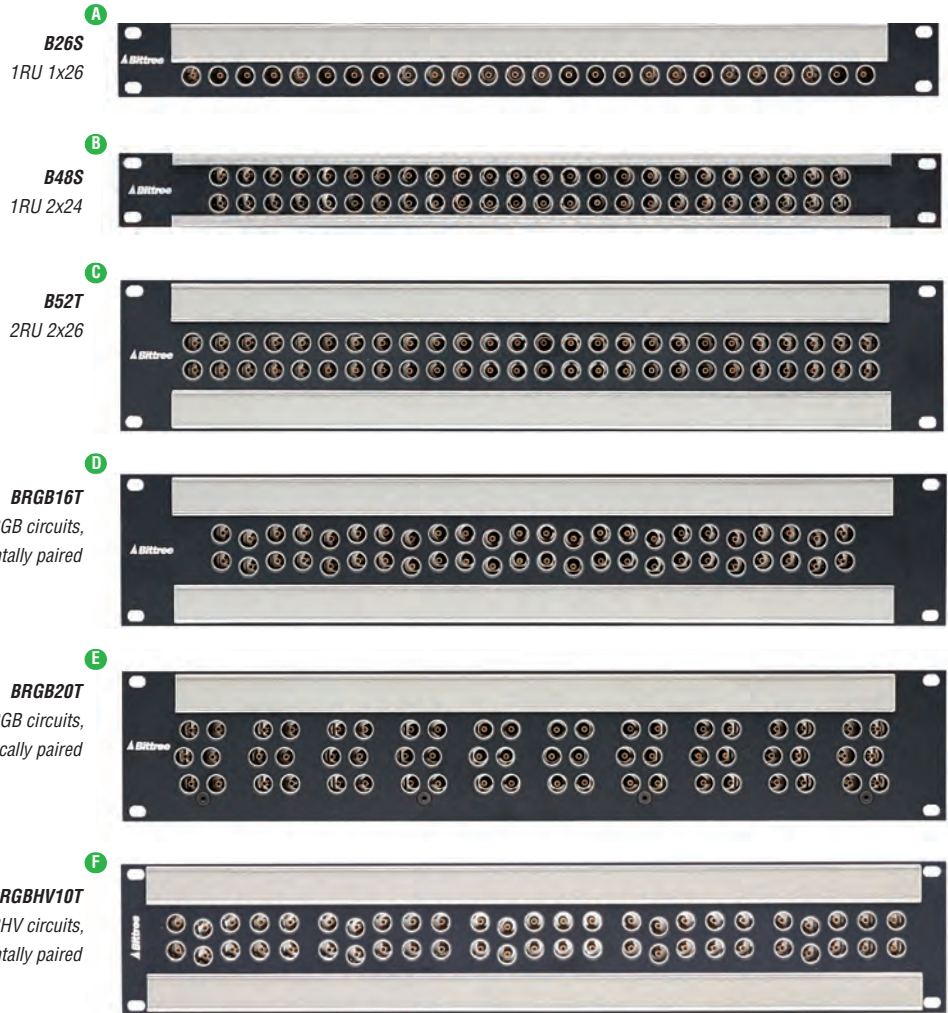
Bittree Video Patching Systems are excellent for use in the high bit rate serial digital domain, including formats such as D1, D2, D3, D5, HDTV and high resolution computer graphics. Typical applications for serial digital patching include monitoring, output routing from distribution amplifiers, VTRs, servers, VDRs, and signal processing equipment. The jacks provide excellent return loss characteristics and a high degree of isolation between signals.

ANALOG VIDEO PATCHING

Bittree Video Patching Systems are designed for exceptional performance in conventional analog video applications such as monitor routing, video distribution, rerouting, back up feeds and bypass functions. Bittree products have been designed and tested to meet rigid quality standards to ensure their long term dependability. Only the very best materials are specified; backed up by stringent assembly and test procedures. All components are selected from established industry standard sources.

VIDEO ACCESSORIES

Bittree offers a wide variety of patch cords, adapters, feed-through BNC panels and custom cable assemblies.



Refer to ordering code guide to create complete patchbay part number.

CPC2400-75
RGB video patch cord, 24"



Adapter BNC to video patch plug



LP7504 Video looping plug, also available in Black, Red, Green, Blue, and Gray.

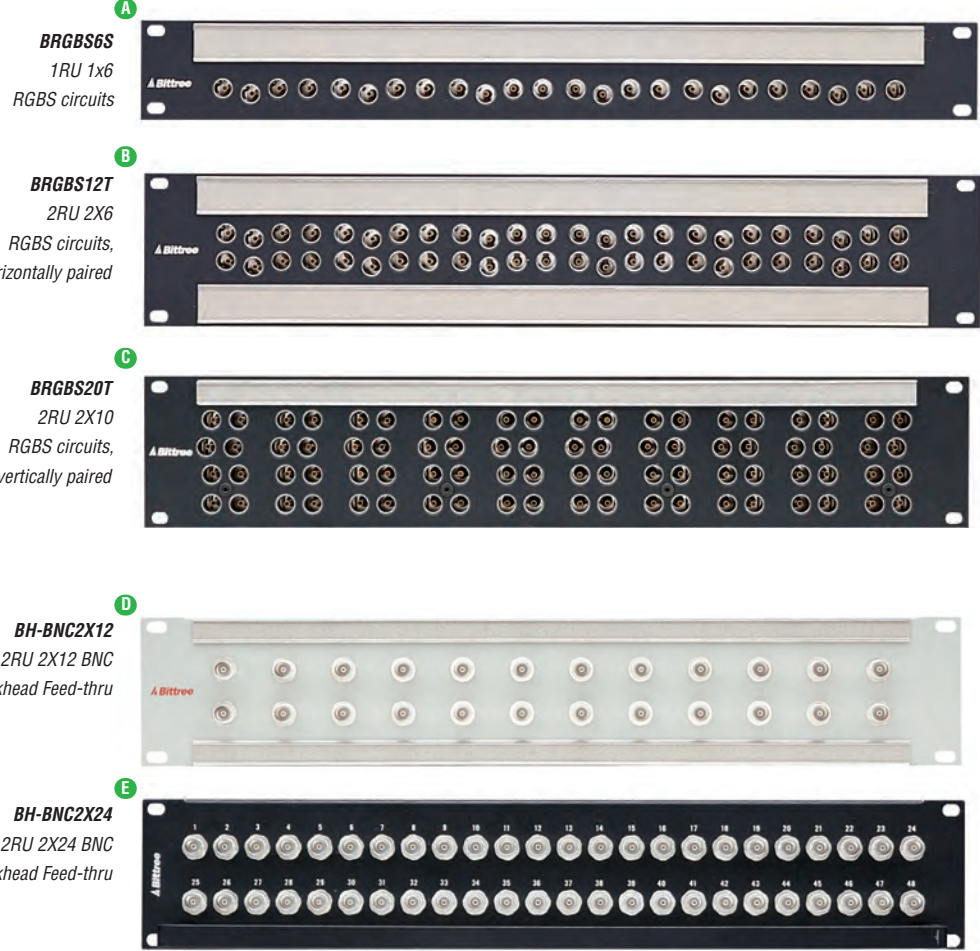


RGBS & RGBHV Patchbays
 Bittree offers the most complete line of standard and non-standard RGB, RGB+ Sync and RGB+ Horizontal & Vertical video patchbays in the industry.

VIDEO PATCHBAYS – FEATURES AND OPTIONS

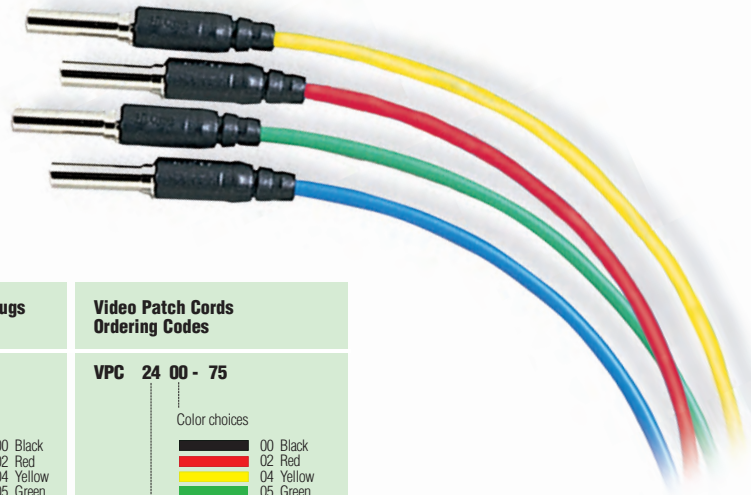
- True 75 ohm impedance with low return loss
- High definition performance beyond 2.5 GHz
- Number of jacks may be specified as 24, 26 or 28 per row
- Front panel may be gray or black, 1, 2, or 1.5 rack units
- RGB video patchbays with vertically or horizontally oriented RGB jack pattern
- 75 ohm WECO standard: .090 center pin diameter on all jacks
- Jacks may be ordered in any one of four configurations
- Dual self-normalizing non-terminated (2WN)
- Dual self-normalizing terminated (2WT)
- Single self-terminating (1WT)
- Single non-terminating (1WN)
- All jacks completely isolated from each other

See pages 13 & 14 for mechanical drawings & schematics.



Refer to ordering code guide to create complete patchbay part number.

Video Patch Cords



Video Patchbay Ordering Codes

B 48 T-2 W N HD

- B**: Bandwidth
 HD=High Definition
 SD=Serial Digital
- 48**: Jack Termination
 N = Non-Terminated
 T = Terminated
- T-2**: Jack Standard
 W = WECO (.090) 75 ohms
 R = RCA (.070) 50 ohms
- W**: Jack Type
 2 = Dual Jack, Normaled
 1 = Single Jack, Non-normaled
- N**: Panel Height
 S = 1 RU
 H = 1 1/2 RU
 T = 2 RU
- HD**: Quantity of Patch Ports
 48 = 2 X 24
 52 = 2 X 26
 56 = 2 X 28
- Color Choice**
 G = Gray
 B = Black

RGB/S Video Patchbay Ordering Codes

B RGB 16T-2 W N

- B**: Designation
 RGB
 RGBS
 RGBHV
- RGB**: Color Choice
 G = Gray
 B = Black
- 16T-2**: Jack Termination
 N = Non-Terminated
 T = Terminated
- W**: Jack Standard
 W = WECO (.090) 75 ohms
 R = RCA (.070) 50 ohms
- 2**: Jack Type
 2 = Dual Jack, Normaled
 1 = Single Jack, Non-normaled
- N**: Panel Height
 S = 1 RU
 T = 2 RU

Video Looping Plugs Ordering Codes

LP75 00

Color choices

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

Video Patch Cords Ordering Codes

VPC 24 00 - 75

Color choices

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

Length in inches
 24, 36, 48, etc.

CONVENTIONAL ANALOG AUDIO PATCHING

Bittree Audio Patching Systems employ TT (Bantam) jacks to provide increased density where space is at a premium. The compact jack assemblies enhance studio versatility through instant and flexible rerouting of signals without taking up valuable rack or console real estate.

Typical applications include audio console I/O, audio routing switcher bypass and input rerouting, recording devices I/O, and master control and central switching I/O.

AES DIGITAL AUDIO PATCHING

AES enclosed-chassis patchbays with E3 rear interface are wired with low-capacitance, shielded twisted-pair 110 ohm impedance cable to accommodate the AES/EBU digital audio specification.

Typically patchbays are full-normaled or non-normaled since it is necessary to provide a single 110 ohm load for each source. This feature also ensures prevention of impedance mismatches, improper loading, multiple connections or double termination (half-normaled not recommended). (See part number code for ordering information.)

A 1RU 2x48 stereo spaced, over / under designation strips



B 1RU 2x48 mono spaced, over / over designation strips



C Normals looped internal, 3-pin rear interface



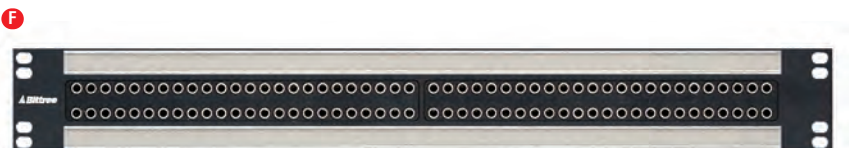
D Normals looped internal, 90-pin rear interface



E Normals out, 90-pin rear interface, 120-pin normals



F 1 1/2 RU 2x48 mono spaced, over / under designation strips



G Normals out, 90-pin rear interface, 120-pin normals



3-pin Mating Connectors / Normals



90-pin Mating Connectors/
120-pin Normal

Mating connectors, contacts and normals (where applicable) are included



K2MA-01 Contact Crimp Tool

06-1742-04 Contact Insertion Tool



06-1877-04 Contact Removal Tool

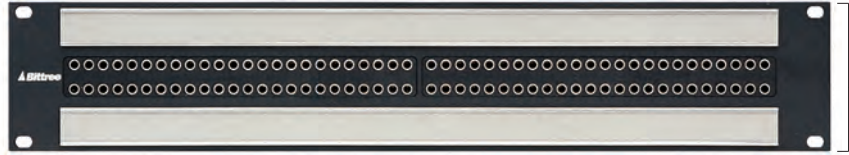
AUDIO PATCHBAYS
– FEATURES AND OPTIONS

- Style may be chassis (single enclosure with attached rear panel) or harness type (detached rear panel—see page 1)
- Rear panel may be individual 3-pin connections or 90-pin interface
- Front panel may be gray or black, 1RU, 2RU, or 1.5RU
- *Mating connectors, contacts and normals (where applicable) are included*
- Customization available
- A wide range of options allow for patchbay design and configuration to meet individual requirements. Options include rear panel configurations, normals, grounds, stereo spacing, panel color and rack unit height.

TIME CODE PATCHING

For time code applications, the same electrical and mechanical concerns as for AES digital signals apply.

A
 2RU 2x48
 mono spaced,
 over / under
 designation strips



B
 Normals looped
 internal, 3-pin
 rear interface



C
 Normals out,
 3-pin rear
 interface,
 3-pin normals



D
 Normals out,
 90-pin rear
 interface, 120-
 pin normals



969 Programmable Series

Bittree's new 969 series is now available. Please contact us at **800.500.8142** or visit our website at www.bittree.com for more information. A technical bulletin is available.

The 969 series allows the engineer to select full, half, or non-normal for individual circuits. The grounding scheme can be selected from bussed, isolated or looped from the front panel.



See pages 13 & 14 for mechanical drawings & schematics.

TT Audio Patchbay Ordering Codes

B 96 D C-FN L I T / E3

Connector
 E3 = 3 Pin
 E90 = 90 Pin
 ID = Punchdown

Panel Height
 S = 1 RU
 H = 1 1/2 RU
 T = 2 RU

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

Normals
 L = Looped Internal
 O = Normals Out
 N = No Normals

Type of Normal
 FN = Full Normal
 HN = Half Normal
 NN = No Normals

Style
 C = Chassis
 H = Harness

A = Analog
 D = 110 ohm digital

Color Choice
 G = Gray
 B = Black

TT Digital/Analog Audio Patch Cords - Ordering Codes

BPC 24 00

Color choices

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

Length in inches
 24, 36, 48, etc.

Dual TT Audio Patch Cords Ordering Codes

DP 24 00

Color choices

00	Black
02	Red
04	Yellow
05	Green
06	Blue

Length in inches
 24, 36, 48, etc.

Bittree Nickel TT (Bantam) Patch Cords come in a variety of colors. Digital capable patch cords, at 110 ohms characteristic impedance, are suitable for analog as well.



Dual Nickel TT (Bantam) Patch Cord

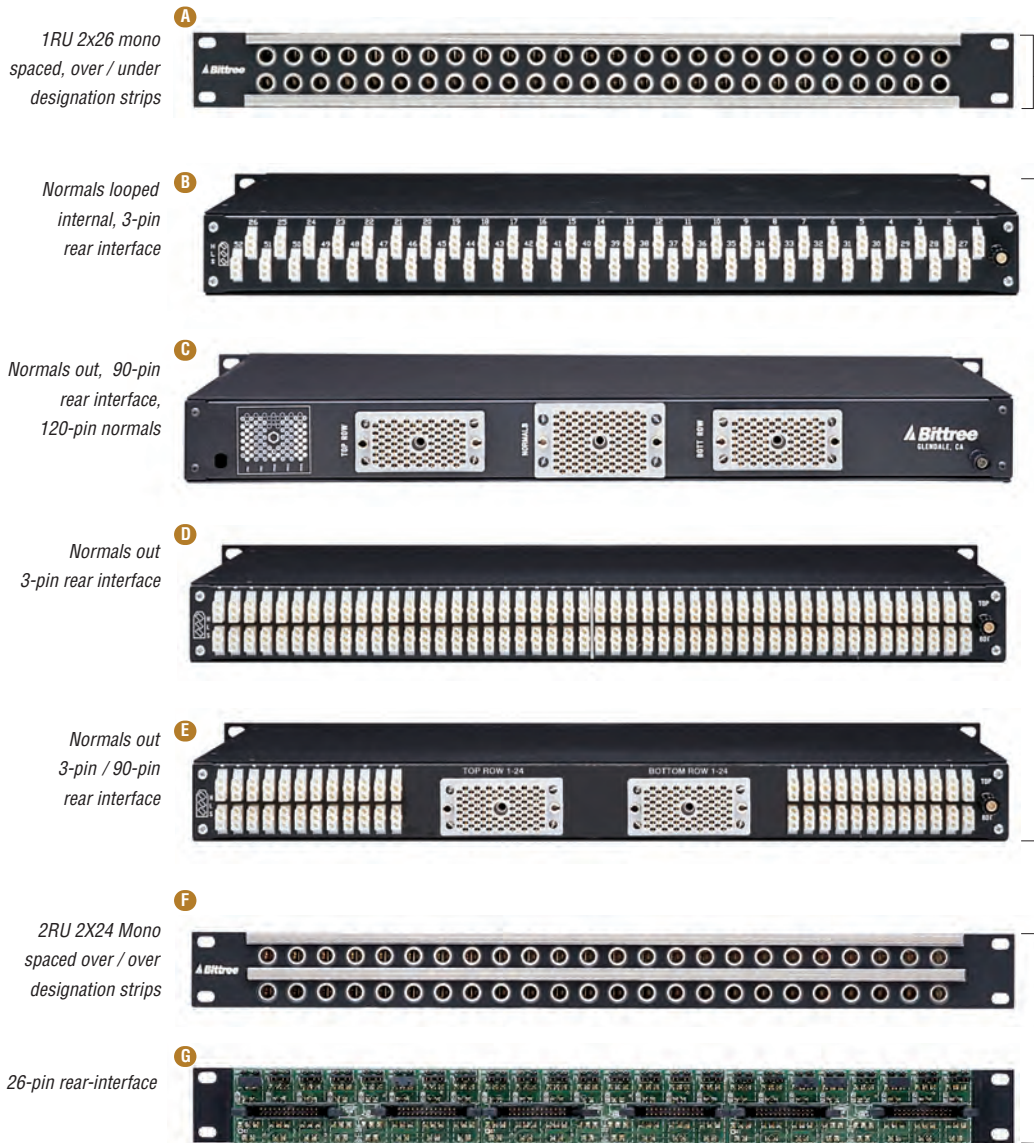
CONVENTIONAL ANALOG AUDIO PATCHING

Bittree Longframe (1/4") Audio Patching Systems allow for enhanced studio versatility, instant and flexible rerouting of signals, and accommodate analog or digital signals. Bittree patchbays meet rigid quality standards to ensure their long term reliability. Only the very best materials and components are specified; backed up by stringent assembly and test procedures.

Typical applications include audio console I/O, audio routing switcher bypass and input rerouting, recording devices I/O, and master control and central switching I/O.

AES DIGITAL AUDIO PATCHING

AES enclosed-chassis patchbays with E3 rear interface are wired with low-capacitance, shielded twisted-pair 110 ohm impedance cable to accommodate the AES/EBU digital audio specification. Typically patchbays are full-normaled or non-normaled since it is necessary to provide a single 110 ohm load for each source. This feature also ensures prevention of impedance mismatches, improper loading, multiple connections or double termination (half-normaled not recommended).



Mating connectors, contacts and normals (where applicable) are included



06-1742-04 Contact Insertion Tool



06-1877-04 Contact Removal Tool

AUDIO PATCHBAYS

– FEATURES AND OPTIONS

- Style may be chassis (single enclosure with attached rear panel) or harness type (detached rear panel—see page 1)
- Rear panel may be individual 3-pin connections or multi-pin interface
- Front panel may be gray or black, 1RU, 2RU, or 1.5RU
- **Mating connectors, contacts and normals (where applicable) are included**
- Customization available
- A wide range of options allow for patchbay design and configuration to meet individual requirements. Options include rear panel configurations, normals, grounds, stereo spacing, panel color and rack unit height.

D
2RU 2x26 mono spaced, over/under designation strips



E
Normals looped internal, 3-pin rear interface



F
Normals out, 3-pin rear interface, 3-pin normals



TIME CODE PATCHING

For time code applications, the same electrical and mechanical concerns as for AES digital signals apply.

See pages 13 & 14 for mechanical drawings & schematics.

489 Programmable Series

Bittree's new 969 series is now available. Please contact us at **800.500.8142** or visit our website at www.bittree.com for more information. A technical bulletin is available.

The 489 series allows the engineer to select full, half, or non-normal for individual circuits. The grounding scheme can be selected from bussed, isolated or looped from the front panel.



Long Frame 1/4" Audio Patchbay Ordering Codes

B 48 D C-FN L I T / E3

Connector
E3 = 3 Pin
E90 = 90 Pin
ID = Punchdown

Panel Height
S = 1 RU
T = 2 RU
H = 1 1/2 RU

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

Normals
L = Looped Internal
O = Normals Out
N = No Normals

Type of Normal
FN = Full Normal
HN = Half Normal
NN = No Normals

Style
C = Chassis
H = Harness

Digital Selection
A = Analog
D = 110 ohm digital

Quantity of Jacks
48, 52

Color Choice
G = Gray
B = Black

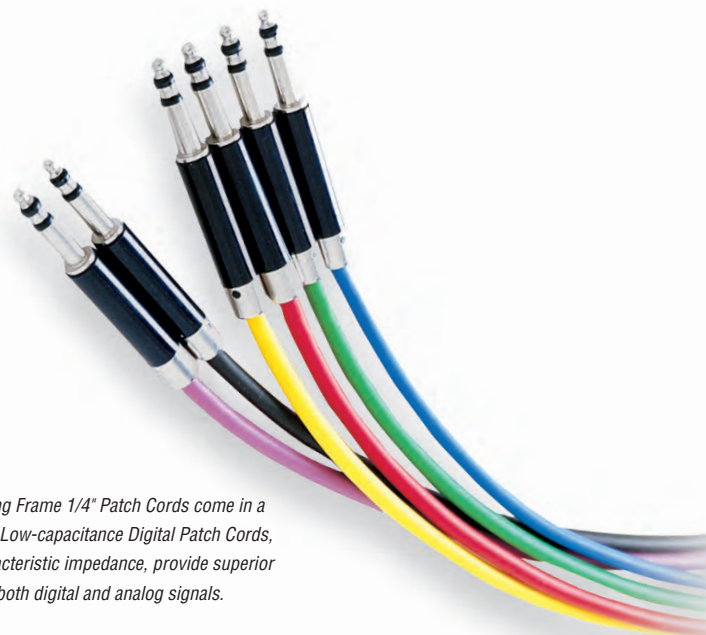
Long Frame 1/4" Digital/Analog Patch Cords - Ordering Codes

APCS N - 24 00

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

Length in inches
24, 36, 48, etc.

N = Nickel plate



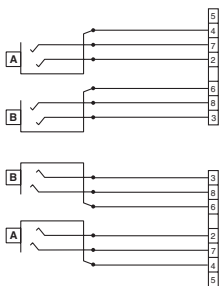
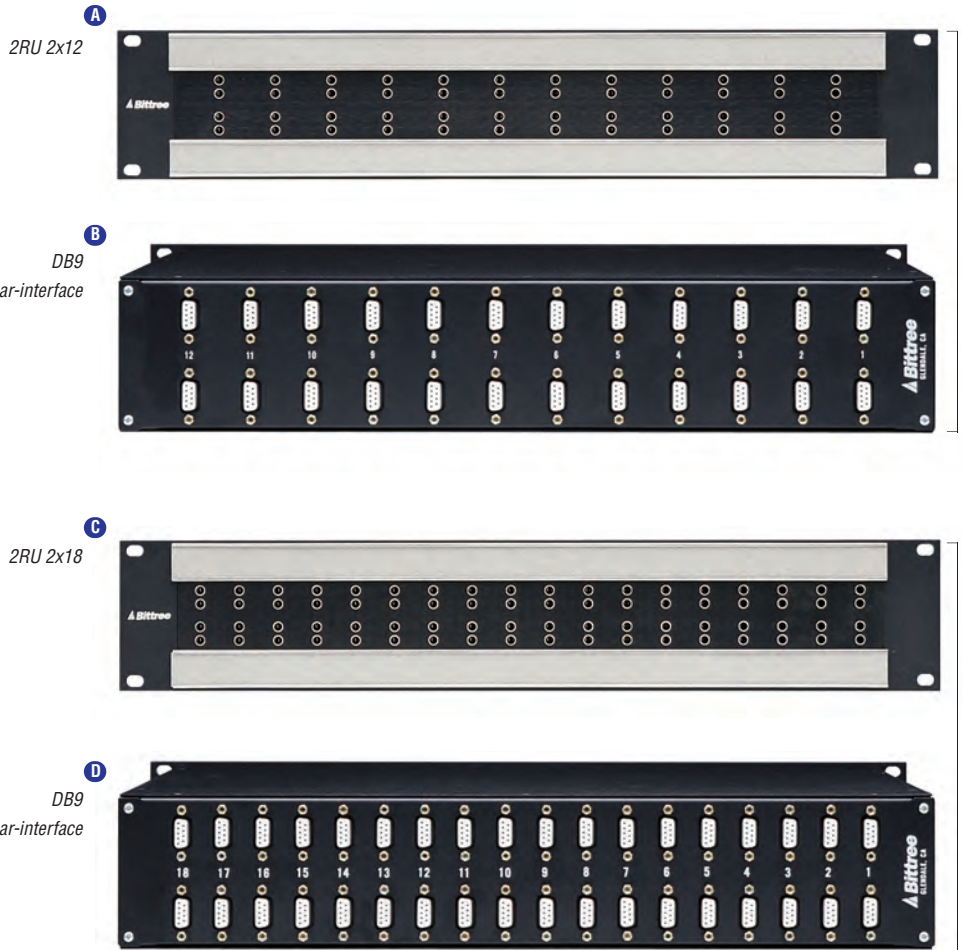
Bittree Nickel Long Frame 1/4" Patch Cords come in a variety of colors. Low-capacitance Digital Patch Cords, at 110 ohm characteristic impedance, provide superior performance for both digital and analog signals.

SERIAL DATA PATCHING SYSTEMS

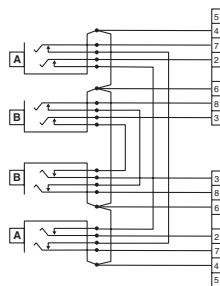
Bittree Serial Data Patching Systems are designed expressively to meet the needs of RS422 serial data patching. Employing a data patch system to handle 422 re-routing chores presents a simple and flexible approach towards system reconfiguration. The cost-effective nature of patching these signals far outweighs the cost and complexity of active routing systems. Bi-directional signals such as SMPTE 207M, RS-422 or RS-232 data are handled with high signal integrity by the Bittree patch panels and associated patch cords. Each jack pair is paired vertically and normaled internally.

Typical applications are present in small to large television broadcast or postproduction facilities where multiple devices such as video and audio tape recorders, disk recorders, and editing systems are shared. Setting up of complex productions, editing or dubbing sessions can be easily simplified by using a data patch panel to expedite the new routing configuration.

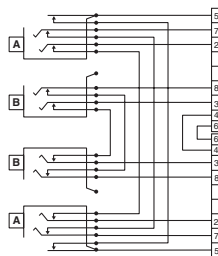
Bittree data patching systems are held to strict electrical and mechanical specifications to guarantee exceptional performance in traditional serial data applications. All back panel connections are standard sub-miniature 9-pin D and handle data rates up to 1Mb/s.



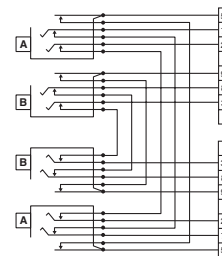
422-NNT
Non-normaled wiring single patch connection



422-N4T
4 Normals wiring single patch connection



422-N5T
5 Normals wiring single patch connection



GPI-N6T
6 Normals wiring single patch connection

APPLICATIONS

- RS-422 serial data patching
- Edit system to VTR patching
- Remote control delegation (e.g., Sony and Lynx systems)
- Computer data interconnection
- Control panel re-routing
- Central distribution of 422 signals

**SERIAL DATA PATCHBAYS
– FEATURES AND OPTIONS**

- Multiple normaling options
- All jacks are vertically paired with each pair normaled internally
- Rugged, reliable TT (Bantam) jacks on front panel
- Standard 9-pin D-sub connectors on rear panel
- 12, 18, & 24 I/O paired ports available
- Single rack units available



See pages 13 & 14 for mechanical drawings & schematics.

Dual Nickel TT (Bantam) patch cords



Data Patchbay Ordering Codes

B422 - N 4 T / 24

Quantity I/O Paired Ports
12, 18 or 24

Panel Height
S = 1 RU (12 I/O ports only)
T = 2 RU

Number of Switched Normals
4, 5, 6 or "N" for not normaled

Color Choice
G = Gray
B = Black

Data Patch Cords Ordering Codes

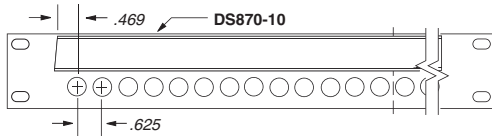
DPC-24 00

Color choices

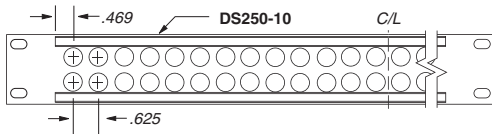
00	Black
02	Red
04	Yellow
05	Green
06	Blue

Length in inches
24, 36, 48, etc.

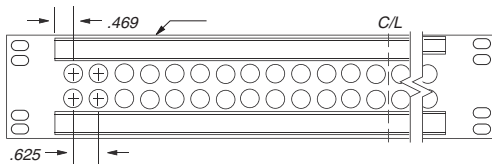
VIDEO/AUDIO



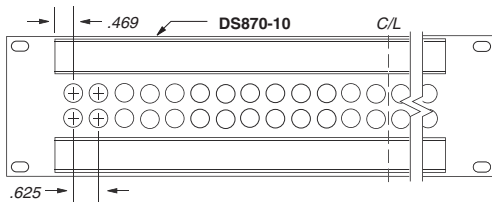
1RU 24S26S 2x12/13



1RU 48S/52S 2x24/26



1-1/2RU 48H/52H 2x24/26



2RU 48T/52T 2x24/26

DESIGNATION STRIPS

Strip dimension = Clear View Area = .22



DS250-10 .277x 16.55 clear plastic cap over .220x 16.55 aluminum bar (Strip not included)
DS250-20 .277x 17.83 clear plastic cap over .220x 17.83 aluminum bar (Strip not included)

Safe View Area = .430



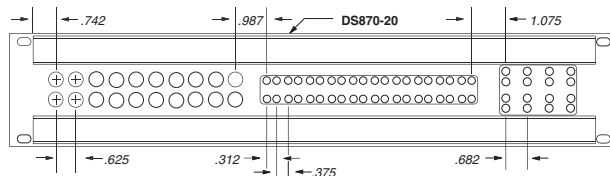
DS580-10 .580x 16.56 stainless steel with .500x16.56 white/clear plastic strips
DS580-20 .580x 17.83 stainless steel with .500x 17.83 white/clear plastic strips

Safe View Area = .700



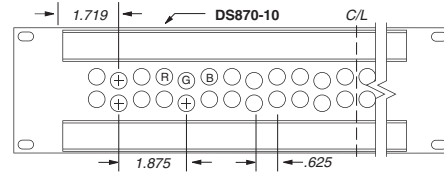
DS870-10 .870x 16.56 stainless steel with .795x 16.56 white/clear plastic strips
DS870-20 .870x 17.83 stainless steel with .795x 17.83 white/clear plastic strips

IPS

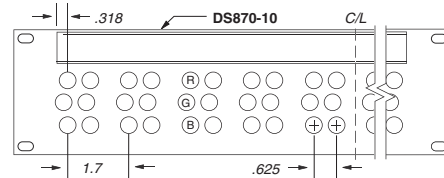


2RU IPS Video 2x10, TT Audio 2x20 Stereo, Data 2x4

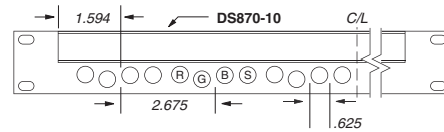
COMPONENT VIDEO



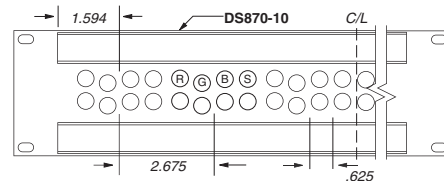
2RU RGB16T 2x8 RGB Circuits



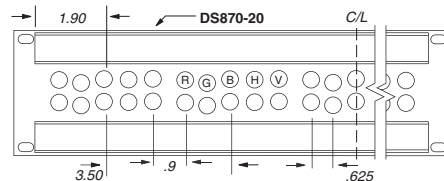
2RU RGB20T 2x10 RGB Circuits



1RU RGBS6S 1x6 RGBS Circuits

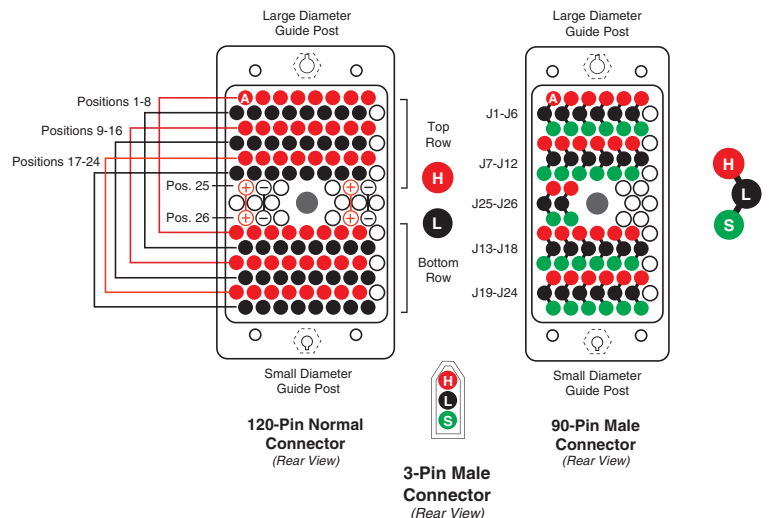


2RU RGBS12T 2x6 RGBS Circuits

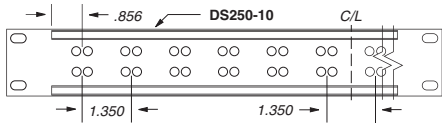


2RU RGBHV10T 2x5 RGBHV Circuits

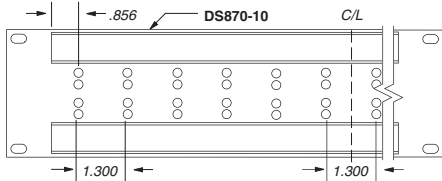
PIN OUTS



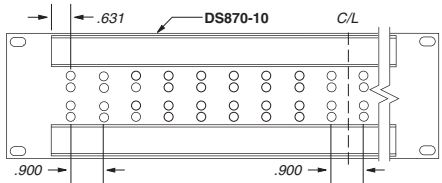
SERIAL DATA



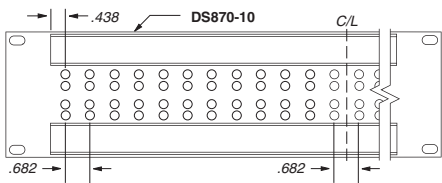
1RU 2x12 Data Circuits



2RU 2x12 Data Circuits

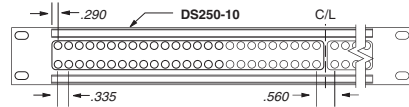


2RU 2x18 Data Circuits

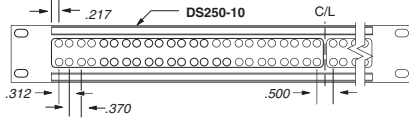


2RU 2x24 Data Circuits

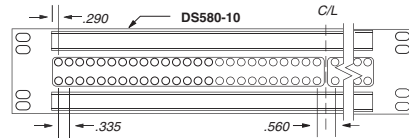
AUDIO — TT



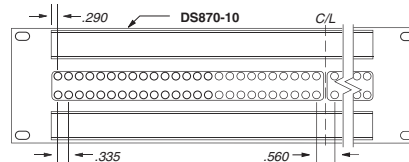
1RU 96S Mono 2x48



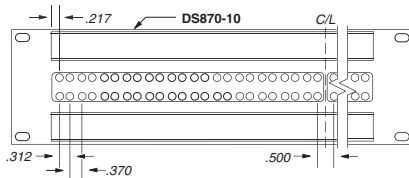
1RU 96S Stereo 2x48



1-1/2RU 96H Mono 2x48



2RU 96T Mono 2x48

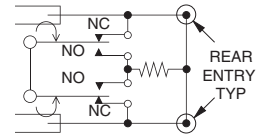


2RU 96T Stereo 2x48

VIDEO

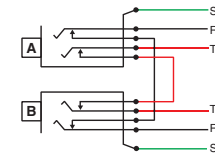


Non-normalized, Self-terminating
Circuit is terminated when
plug is removed

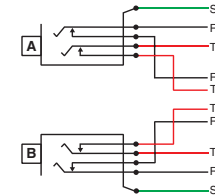


Normalizing, Self-terminating
Inserting a plug automatically
terminates the unused side

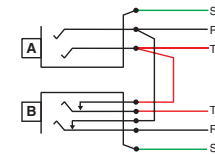
AUDIO



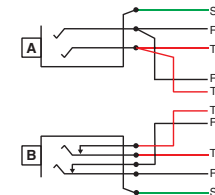
Full Normal (Looped), Isolated Ground
Inserting a plug into either side
breaks the normal-through.



Full Normals (Out), Isolated Ground
Normalizing circuits are connectorized externally
to allow manual non-normalizing
of individual positions

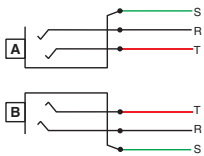


Half Normal (Looped), Isolated Ground
Inserting a plug into the top row monitors
the circuit. Inserting a plug into the
bottom row breaks the normal-through.



Half Normals (Out), Isolated Ground
Normalizing circuits are connectorized externally
to allow manual non-normalizing
of individual positions

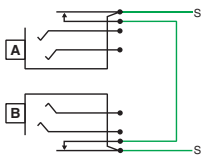
GROUNDING



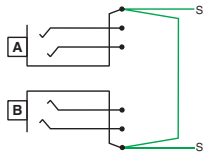
Non-Normalized, Isolated Ground
No normalizing circuits are provided
internally or externally.

Isolated Ground

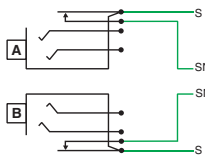
Each audio circuit has shield isolated
from the front panel and each other.



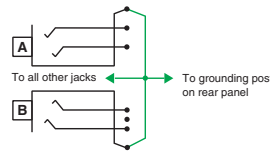
Switched Ground (Looped)
Each vertical pair of audio circuits
has shields common and is isolated
from the front panel and adjacent
circuits. Inserting a plug lifts shield.



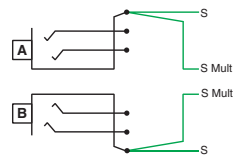
Looped Ground
Each vertical pair of audio circuits
has shields common and is
isolated from the front panel
and adjacent circuits



Switched Ground (Out)
Normalizing circuits are connectorized
externally to allow manual
non-normalizing of individual positions



Bussed Ground
Every audio circuit has common
shield, isolated from the front panel
and bussed to a ground connector
on the rear panel.



Grounds (Out)
Shields are connectorized externally
to allow manual multing
of individual positions

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