**Pro Audio & Broadcast Catalog**Sixth Edition

# Swifteheraft.com



Patchbays, Patchcords & Molded Cable Assemblies



**Connectors and Adapters** 



Jacks and Plugs



**Guitar Switches** 

### **About Switchcraft, Inc.**

Switchcraft, Inc. was established in 1946 to manufacture jacks, plugs, and switches. We have since become the industry leader in producing a wide variety of connectors, adapters, jacks and plugs, patchbays, jackfields, and switches. While our products cover a diverse number of markets, this catalog focuses on our line of audio and video products, typically found in broadcast, recording, sound reinforcement, and other pro audio applications.

Some of the new products you'll find in this catalog include our EZ Norm Series of audio patchbays, where normal configurations can be changed from the front of the patchbay, using a standard screwdriver. Also found in this edition are new combination audio/video patchbays in both standard/long-frame and midsize/bantam styles. In the connector section, we're offering a new line of connectors called our EH Series, incorporating a wide range of connectors (Firewire, USB, Category 6, BNC, RCA, and more) in a standard XLR housing.

Please keep in mind that this is just a small sampling of our complete product lines. For more detailed information, we offer our "full line" catalog, our Engineering Design Guide.

Our Engineering Design Guide includes over 5,000 part numbers covering all five major product lines. If you don't see it here, chances are you'll find it in the EDG. And again, keep in mind that the EDG is also just a "snapshot" of our capabilities. We manufacture over 30,000 part numbers, so if it's not in the EDG, please contact us with your requirements. To keep up on all the new products we have to offer, visit our website at www.switchcraft.com and look for the New Product Showcase.

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#### **Limited Lifetime Warranty**

Switchcraft warrants all of its products to be of sound design, good materials and workmanship at the time of manufacture.

Switchcraft will repair or replace at its discretion any product proven to be defective under normal use.

Switchcraft's liability under the terms of this warranty is limited to the repair or replacement of defective products which have not been damaged through accident, abuse, misuse or unauthorized repair. Switchcraft shall in no case be liable for special or consequential damages of any nature.

# **Our Patchbays Now Feature the New Professional Punchdown Terminal (PPT)**

# Our Patchbays Have Just Rounded A New Corner

Actually, the corners we rounded belong to our patchbays' revolutionary, new Professional Punchdown Terminal (PPT), making it perfectly compatible with the industry standard. We realized that achieving a new industry standard meant we couldn't cut any corners to get there.

The PPT design incorporates a split-barrel design and a more rugged, thicker housing to minimize the impact of repeated punchdowns. The split-barrel design eliminates the problems associated with the old "V-shaped" terminal designs. The PPT design distributes pressure evenly across both sides of the terminated wire, causing improved wire retention plus more reliable connections. The serrated teeth in the plastic housing firmly grip the wires, which also greatly improves wire retention. With the PPT, multiple wires can be terminated to a single contact, and a wide range of wire gauges can be used.



Look for Switchcraft's PPT in our MTP and TTP Series of audio patchbays, and in our new Backpanel Series. All Switchcraft audio patchbays incorporate heavy gauge materials and our high quality nickel-plated, steel framed jacks. Gold-plated, crossbar contacts come standard!

#### **Materials**

orange.

Housing: Thermoplastic (UL 94V-0)

Contacts: High strength copper alloy, tin plated

Wire size: Accommodates #22, 24, or 26 AWG, stranded or solid

#### **Accessories**

Part Number

K459
PPT replacement kit consists of 15 of each color\* (IDC/IDC)

K460
PPT replacement kit consists of 15 of each color (IDC/wirewrap)

PT1LA
PPT impact punchdown tool

PT2B
Replacement bit for PT1LA tool

\*Colors consist of red, black, white, yellow, blue, and



### **MTPH/TTPH Harness Series**

#### **Features and Benefits**

- Units feature either 48 MT style jacks or 96 TT style jacks on the front panels, to a 4 foot harness, out to a backpanel with PPT's
- All versions utilize AES/EBU wiring for complete digital compatibility
- Attractive, corrosion resistant nickel-plated, steel frame jacks
- Gold-plated switching contacts reduce contact resistance, improve reliability

#### **Specifications**

#### **Materials**

#### Jacks

Frame: Nickel-plated steel Bushing: Nickel-plated brass Tip, Ring and Shunt Springs: Nickel silver with welded contacts

Assembly Screws: Zinc-plated

steel

Welded Contacts: Gold alloy

#### **Panel**

Front Channel:

Black anodized aluminum
Frame: C.R.S. black epoxy painted
Designation Strips: Black
polycarbonate 94V-0
Designation Strip Covers: Clear
polycarbonate
Jack Inserts: Thermoplastic

polyester

#### **Mechanical**

Life: 30,000 cycles Insertion Force: 7 lbs. maximum Withdrawal Force: 1 lb. minimum Environmental: 0°C to +50°C

#### **Electrical**

Contact Resistance: 30 milliohms maximum initial Insulation Resistance: 10,000

megohms maximum

Dielectric Withstanding Voltage: 500 VAC at 60 Hz

Working Voltage: 140 VDC maximum Current Rating: 100 milliamps



The MTPH and TTPH Harness Series utilize standard front panel assemblies, a 4-foot cable harness, and our standard back panel assemblies. Primarily used where the back panels must either be mounted into a rack, or brought back to the front for easier access. Custom cable lengths can also be supplied. Contact the factory for details.

**Ordering Information** 

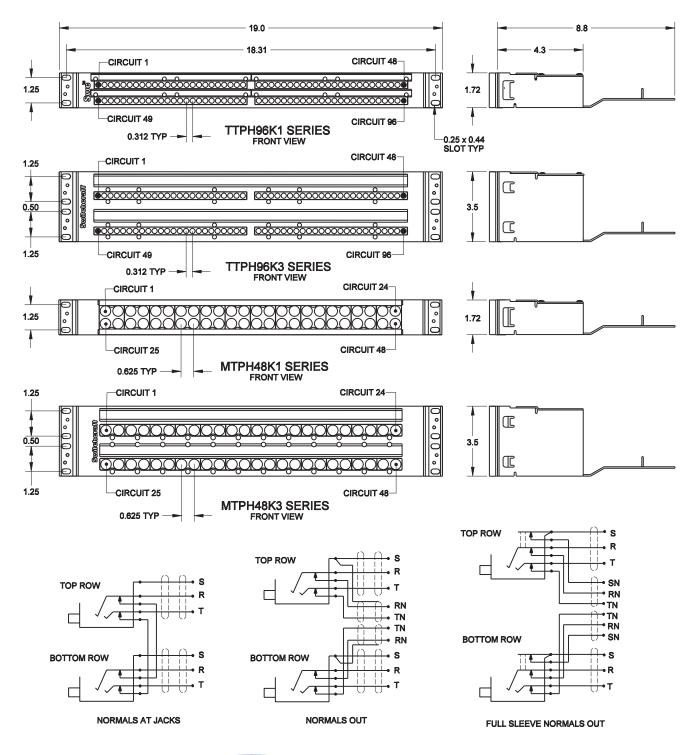
	Type	No. of	
Part Number	of Jack	Jacks	Description
MTPH48K1NS	MT	48	1.75" High front panel, 4' Harness, 3.5" High back panel, normals strapped
MTPH48K1NO	MT	48	1.75" High front panel, 4' Harness, 3.5" High back panel, normals brought out
MTPH48K3NS	MT	48	3.5" High front panel, 4' Harness, 3.5" High back panel, normals strapped
MTPH48K3NO	MT	48	3.5" High front panel, 4' Harness, 3.5" High back panel, normals brought out
MTPH48K3SNO	MT	48	3.5" High front panel, 4' Harness, 3.5" High back panel, sleeve normals brought out
TTPH96K1NS	TT	96	1.75" High front panel, 4' Harness, 3.5" High back panel, normals strapped
TTPH96K1NO	TT	96	1.75" High front panel, 4' Harness, 5.25" High back panel, normals brought out
TTPH96K3NS	TT	96	3.5" High front panel, 4' Harness, 3.5" High back panel, normals strapped
TTPH96K3NO	TT	96	3.5" High front panel, 4' Harness, 5.25" High back panel, normals brought out

See Next Page for Mechanical Drawings

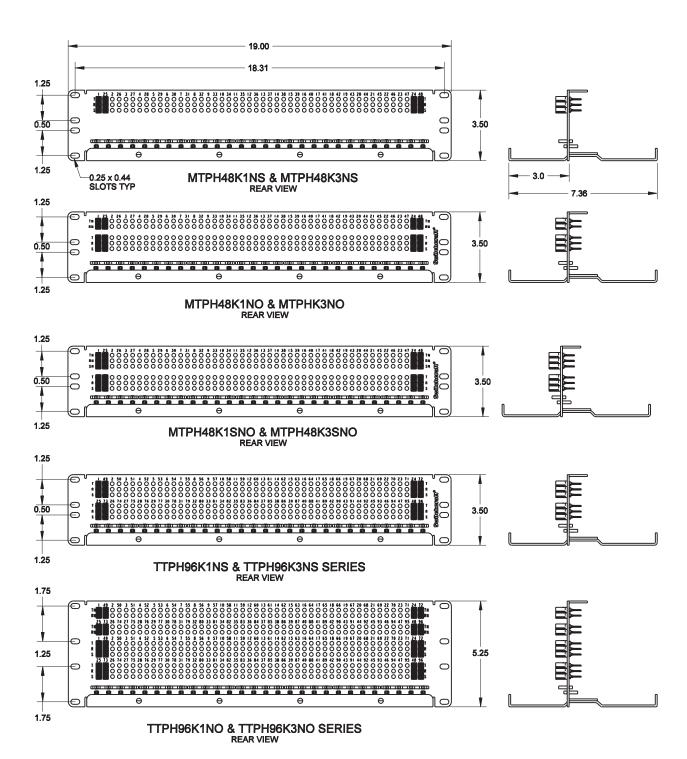




### **MTPH/TTPH Harness Series**



# **MTPH/TTPH Harness Series**





### **Front Access Series**

#### **Features and Benefits**

- Easy slide-out tray slides forward for easy re-termination from the front of the rack
- Available with either 48 MT style or 96 TT style jacks in a 1RU
- Attractive, corrosion resistant nickel-plated, steel frame jacks
- Gold-plated switching contacts reduce contact resistance, improves reliability
- Extra wide designation strips for easy channel identification
- Rugged, attractive black epoxy-finished steel chassis
- Configurations available include normals strapped and normals brought out

#### **Specifications**

#### **Materials**

#### **Jacks**

Frame: Nickel-plated steel Bushing: Nickel-plated brass Tip, Ring and Shunt Springs: Nickel silver with welded contacts

Assembly Screws: Nickel-plated

steel

Welded Contacts: Gold alloy

Frame: C.R.S. black epoxy painted

Designation Strips: Black polycarbonate 94V-0

Designation Strip Covers: Clear

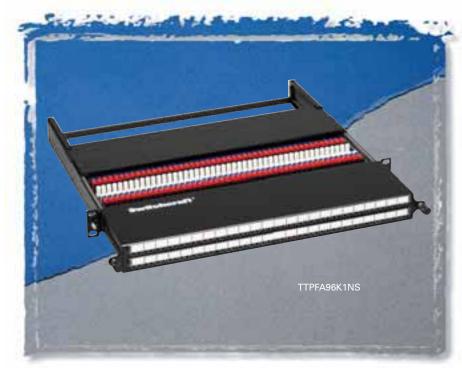
polycarbonate

Jack Inserts: Thermoplastic 94V-0

#### Mechanical

Life: 30.000 cycles

Insertion Force: 7 lbs. maximum Withdrawal Force: 1 lb. minimum Operating: -20°C to +65°C



The Front Access Series offers the end user the ease of re-terminating patchpoints from the front of the rack as opposed to the back. A slide out tray allows the user to slide out the punchdown terminals and reconfigure the unit. An easy release mechanism on either side of the unit allows it to be pushed back into place and easy to grip locking nuts tighten the unit in place.

#### **Electrical**

Jack Contact Resistance: 30 milliohms initial maximum; 50 milliohms after life Jack Insulation Resistance:

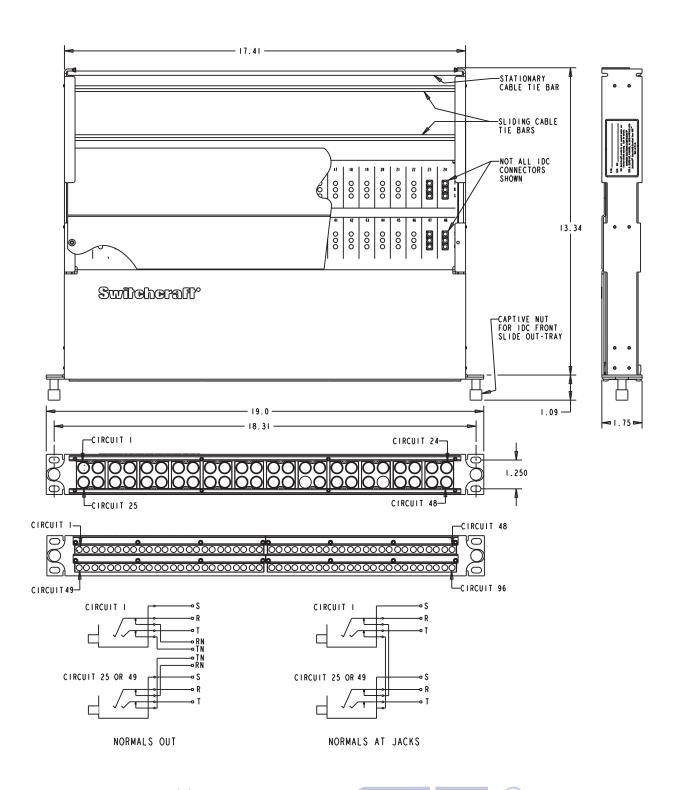
10,000 megohms maximum

Dielectric Withstanding Voltage: 500V at 60 Hz AC Working Voltage: 100 milliamps or less: maximum 56.5 VDC

<b>Part Number</b>	Type of Jack	No. of Jacks	Description
TTPFA96K1NS	TT	96	1.75" High, normals strapped
TTPFA96K1NO	TT	96	1.75" High, normals brought out
MTPFA48K1NS	MT	48	1.75" High, normals strapped
MTPFA48K1NO	MT	48	1.75" High, normals brought out

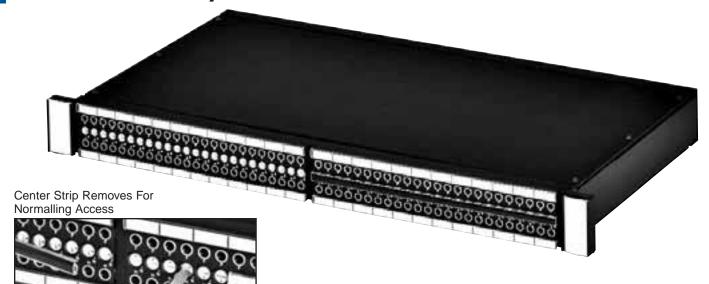


### Front Access Series 9





### **III** EZ Norm Patchbay Series



Easily Normal The Jacks By Rotating To "Full", "Non," Or "Half" Positions

The EZ Norm offers a simplified method for setting up and changing normals to a Bantam/TT patchbay. Simply remove the middle designation strip, and rotate the center cam, using a standard screwdriver. An audible "click" can be heard as you rotate from full normals to no normals to half normals. An opaque marking strip is included to conceal the normal position, if needed.

#### **Specifications**

#### **Materials**

Jacks

Housing & Cover: 94V-0 rated thermoplastic Sleeve Collar: Nickel plated copper alloy Tip, Ring, Shunt, & Sleeve Springs: Nickel Silver

with welded contacts Welded Contacts: Gold

Cam Switching Springs: Silver plated copper alloy Cam Switching Contacts: Silver plated copper alloy

#### Mechanical

Jack Mechanical Life: 30,000 cycles Cam Contact Mechanical Life: 30,000 cycles Insertion - Withdrawal Forces: 1 - 4 lbs. Moisture resistance: MIL-STD 202 Method 106 Thermal shock: MIL-STD 202 Method 107 Salt spray: MIL-STD Method 101 (48 hrs.) Vibration: MIL-STD 202 Method 213

#### **Electrical**

Jack Spring Contact Resistance: 30 milliohm Maximum

Cam Switch Contact Resistance: 30 milliohm

Maximum

Insulation Resistance: 10,000 Megaohms

Dielectric Withstanding Voltage: 500 VAC (rms) at 60 Hz

Insertion Loss: -0.5dB up to 10 MHz

#### **EZ Norm Patchbay Options**

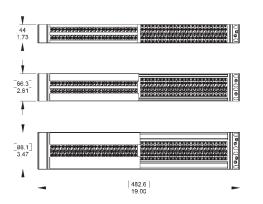
- 1RU can be terminated to EDAC or Cannon DL, solder terminals, or wire-wrap terminals
- 1.5RU can be terminated to EDAC/Cannon DL, solder terminals, wire-wrap terminals, plus 3 pin connectors, or our own PPT Professional Punchdown Terminal
- 2RU Same as above
- All units will be offered with or w/o docking connector
- Unwired units will be offered with either cable tie bar or cable tray

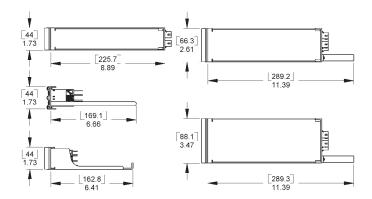


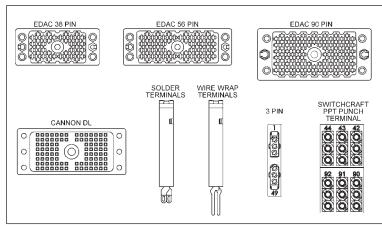
# EZ Norm Patchbay Series 11

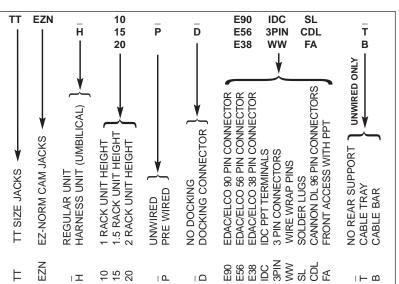
#### **Racks**

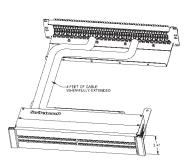
The EZ Norm comes in 3 different rack heights, 1RU, 1.5RU, and 2 RU.





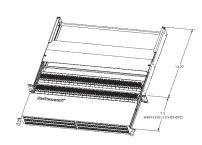






#### **Harness Assembly**

The EZ Norm is also offered as a harness assembly, with a standard harness of 4 ft. Custom lengths are available, call Switchcraft® for details.



#### **Front Access**

The Front Access option offers a slide-out tray, allowing the end user to re-terminate the patchbay from the front of the rack.

DIMENSIONS ARE FOR REFERENCE ONLY

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EZN



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# 12 RS 422 Data Patchbay Series



ports, rack heights, and back panel terminations which will easily fit into any television broadcast or video production where custom data patching is required. Custom ports and rack height combinations can be supplied. Contact the factory for details.

#### **Ordering Information**

Part Number*	No. of Jacks	Front Panel Layout	Back Plane	Rack Height
RS422H4N081	2 x 8	Horizontal	9 Pin D-Sub	1
RS422V4N081	2 x 8	Vertical	9 Pin D-Sub	1
RS422H4N161	2 x 16	Horizontal	9 Pin D-Sub	1
RS422H4N162	2 x 16	Horizontal	9 Pin D-Sub	2
RS422V4N161	2 x 16	Vertical	9 Pin D-Sub	1
RS422V4N162	2 x 16	Vertical	9 Pin D-Sub	2
RS422H4N242	2 x 24	Horizontal	9 Pin D-Sub	2
RS422V4N242	2 x 24	Vertical	9 Pin D-Sub	2
RS422V4N322	2 x 32	Vertical	9 Pin D-Sub	2

<sup>\*</sup>Add "N" for non-normalled version

#### **Features and Benefits**

- Unit Features either 8,16, 24, or 32 TT style jacks on the front Panels, to a 9 pin D-Sub.
- All versions utilize low capacitance internal wiring for maximum performance of transferring data
- All standard units are available 1 or 2 rack units high (1.5 RU available by request)
- Rugged, attractive black epoxy finished steel frame chassis

#### **Specifications**

#### **Electrical**

**Internal Wiring:** 

24 AWG Solid TC, foils shield

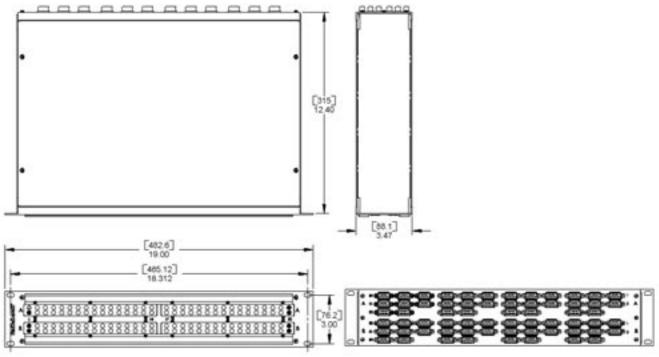
**Nom Capacitance:** 11.5 pF/ft between conductors 21.3 pF/ft between one conductor and conductor

connected to the shield **Nom. Impedence:** 110 Ohms

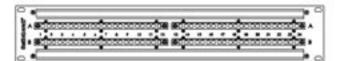




# **RS 422 Data Patchbay Series**



RS422V4N322 32 Vertical Paired Jacks Front and Back Views





RS422H4N242 24 Horizontal Paired Jacks Front and Back Views

# igital Ready

### **MTP48K Wired Series**

#### **Features and Benefits**

- Unit features 48 MT style jacks in either 1RU (1.75" H) or 2RU (3.5" H) spaces
- All versions utilize AES/EBU wiring for complete digital compatibility
- Attractive, corrosion resistant nickel-plated, steel frame jacks
- Gold-plated switching contacts reduce contact resistance, improve reliability
- Rugged, attractive black epoxyfinished steel chassis
- Extra wide designation strips for easy channel identification
- 1RU version configurations include normals strapped and normals brought out
- 2RU version configurations include normals strapped, normals brought out, and sleeve normals brought out

#### **Specifications**

#### **Materials**

#### Jacks

Frame: Nickel-plated steel Bushing: Nickel-plated brass Tip, Ring and Shunt Springs: Nickel silver with welded contacts

Assembly Screws: Zinc-plated

steel

Welded Contacts: Gold alloy

#### Panel

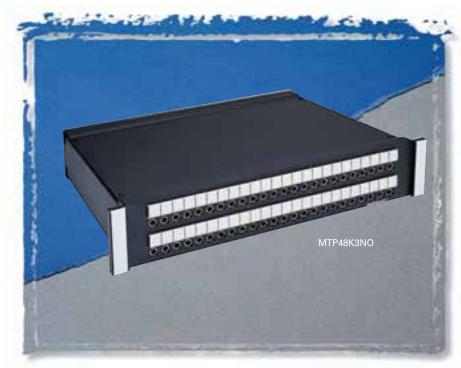
Front Channel:

Black anodized aluminum Frame: C.R.S. black epoxy painted Designation Strips: Black polycarbonate 94V-0 Designation Strip Covers: Clear

polycarbonate

Jack Inserts: Thermoplastic

polyester



The MTP Series was developed with the AES/EBU digital standard in mind. All versions are made with 110 Ohm cabling inside as a standard. Available in a wide variety of configurations.

#### Mechanical

Life: 30,000 cycles Insertion Force: 7 lbs. maximum Withdrawal Force: 1 lb. minimum Environmental: O°C to +50°C

#### **Electrical**

Contact Resistance: 30 milliohms

maximum initial

Insulation Resistance: 10,000 megohms maximum Dielectric Withstanding Voltage: 500 VAC at 60 Hz

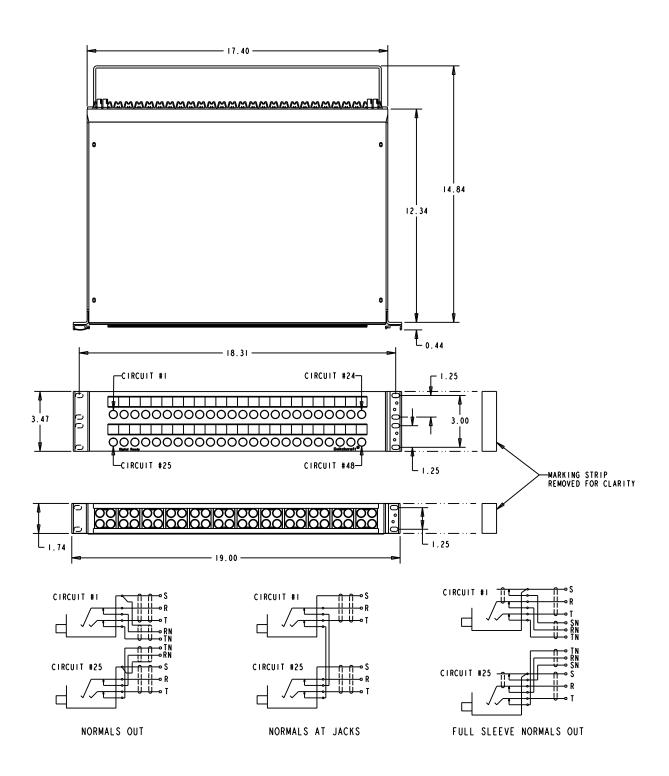
Working Voltage: 140 VDC maximum

Current Rating: 100 milliamps

Part Number	Type of Jack	No. of Jacks	Description
MTP48K1NS	MT	48	1.75" High, normals strapped
MTP48K3NS	MT	48	3.5" High, normals strapped
MTP48K1NO	MT	48	1.75" High, normals brought out
MTP48K3NO	MT	48	3.5" High, normals brought out
MTP48K3SNO	MT	48	3.5" High, sleeve normals out



# MTP48K Wired Series 15





# AES / EBU Digital Ready!

# 16 TTPW96K Wired Series

#### **Features and Benefits**

- Unit features 96 TT style jacks in 2RU (3.5"H) space
- Utilizes AES/EBU wiring for complete digital compatibility
- Attractive, corrosion resistant nickel-plated, steel frame jacks
- Gold-plated switching contacts reduce contact resistance, improve reliability
- Rugged, attractive black epoxyfinished steel chassis
- Extra wide designation strips for easy channel identification

#### **Specifications**

#### **Materials**

#### Jacks

Frame: Nickel-plated steel
Bushing: Nickel-plated brass
Tip, Ring and Shunt Springs: Nickel
silver with welded contacts
Assembly Screws: Zinc-plated
steel

Welded Contacts: Gold alloy

#### Panel

Front Channel:

Black anodized aluminum
Frame: C.R.S. black epoxy painted
Designation Strips: Black
polycarbonate 94V-0
Designation Strip Covers: Clear

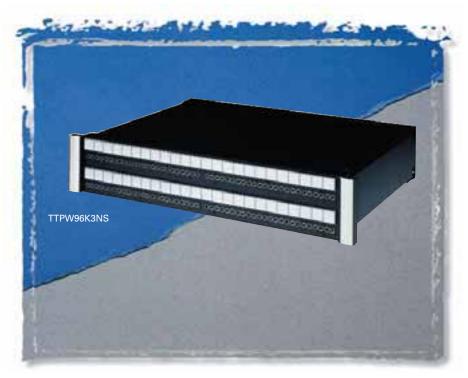
polycarbonate

Jack Inserts: Thermoplastic polyester

#### Mechanical

Life: 30,000 cycles

Insertion Force: 7 lbs. maximum Withdrawal Force: 1 lb. minimum Environmental: 0°C to +50°C



The TTPW96K Series was developed with the AES/EBU digital standard in mind. As a standard, the TTPW96K utilizes 110 Ohm cabling inside.

#### **Electrical**

Contact Resistance: 30 milliohms

maximum initial

Insulation Resistance: 10,000 megohms maximum

Dielectric Withstanding Voltage:

500 VAC at 60 Hz Working Voltage: 140 VDC

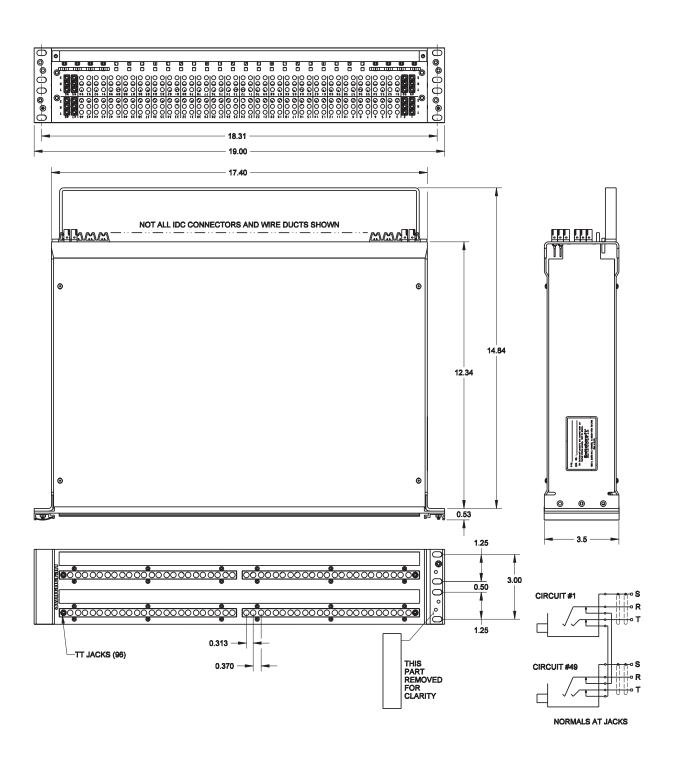
maximum

Current Rating: 100 milliamps

Part Number	Type of Jack	No. of Jacks	Description
TTPW96K1NN	TT	96	1.75" High, non-normals
TTPW96K1HN	TT	96	1.75" High, half normals
TTPW96K1NS	TT	96	1.75" High, normals strapped
TTPW96K3NN	TT	96	3.5" High, non-normals
TTPW96K3HN	TT	96	3.5" High, half normals
TTPW96K3NS	TT	96	3.5" High, normals strapped



# TTPW96K Wired Series 17





### 18 MTPBP/TTPBP Backpanel Series

#### **Features and Benefits**

- Allows for custom patchbay configurations or central patching points
- PPTs have IDCs on both sides for easy installation
- Rugged, attractive black epoxy-finished steel chassis
- Cable trays allow for mounting and securing terminated cable

#### **Specifications**

Panel thickness: .093"
Mounting hole diameter: .187"
Mounting hole spacing (48
IDCs/row): .340" (Horizontal)
x .275" (Vertical)
Mounting hole spacing (52
IDCs/row): .320" (Horizontal)
x .275" (Vertical)
Wire size: #22, 24, 26 AWG

Stranded or Solid

(IDC termination)

#### **Materials**

Housing: Thermoplastic (UL 94V-0) Contacts: High strength copper

alloy

Backpanels: Black Epoxy coated

C.R.S.

Cable Tray: Black Epoxy coated

C.R.S.

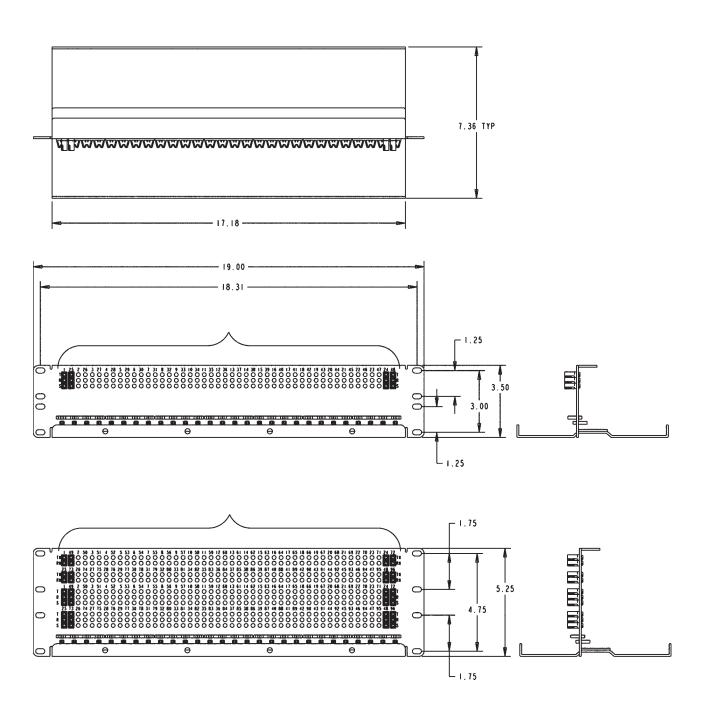


The Backpanel Series offers the end user the flexibility of configuring their own patchbay, or to use as a central patchpoint location. The backpanels utilize the PPT punchdown and come with a rugged cable tray.

Part Number	Sets of PPT Terminals	Height	Description
MTP48K3BPNS	48	3.5"	T, R, S
MTP48K3PBNO	48	3.5"	T, R, S, TN, RN
MTP52K3BPNO	52	3.5"	T, R, S, TN, RN
MTP24K7	24 x 2	7.0"	+, -, S
TTP96K3BPNS	96	3.5"	T, R, S
TTP96K5BPNS	96 x 2	5.25"	T, R, S, TN, RN



# MTPBP/TTPBP Backpanel Series 19





### TT96 EDAC Series

#### **Features and Benefits**

- Attractive, corrosion-resistant, nickel-plated jacks
- Steel frame jacks for superior jack life
- Extra wide labeling strips provide maximum space and two vertical strips, one at each side
- Rugged, attractive black anodized aluminum face will not break
- Two configurations available:
  - Normals brought out
  - Normaled at jacks
- Gold switching contacts for long-term reliability
- Jacks paired for easy identification of left and right channels
- Connectorized by EDAC® connectors for ease of termination by customer

#### **Specifications**

#### **Materials**

#### Jacks

Frame: Nickel-plated steel
Bushing: Nickel-plated brass
Tip, Ring and Shunt Springs: Nickel
silver with welded contacts
Assembly Screws: Zinc-plated
steel

Welded Contacts: Gold alloy

#### Panel

Front Channel: Black anodized aluminum

Frame & Cover: C.R.S. black

epoxy painted

Designation Strips: Black polycar-

bonate 94V-0

Designation Strip Covers: Clear

polycarbonate

Jack Inserts: Polyester

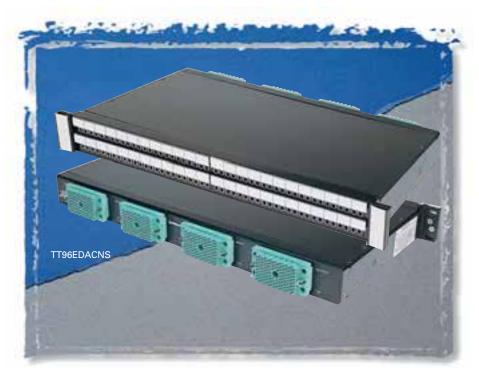
#### **EDAC Connector**

Housing: Thermoplastic, UL94V-0 Contacts: Gold plated phosphor bronze

#### Mechanical

Life: 30,000 cycles Insertion Force: 7 lbs. maximum Withdrawal Force: 1 lb. minimum

Operating: -20°C to +65°C



The TT96EDAC Series offers the convenience of EDAC® connectors on the back of the panel for easy installation. Available in normals strapped and normals brought out, both wired to the SAC code of wiring. We also offer custom wiring configurations. Contact the factory for details.

#### **Electrical**

Contact Resistance: 30 milliohms maximum initial Insulation Resistance: 10,000 megohms Dielectric Withstanding Voltage: 500VAC at 60 Hz Working Voltage: 140VDC Current Rating: 100 milliamps

#### **EDAC Mating Plugs**

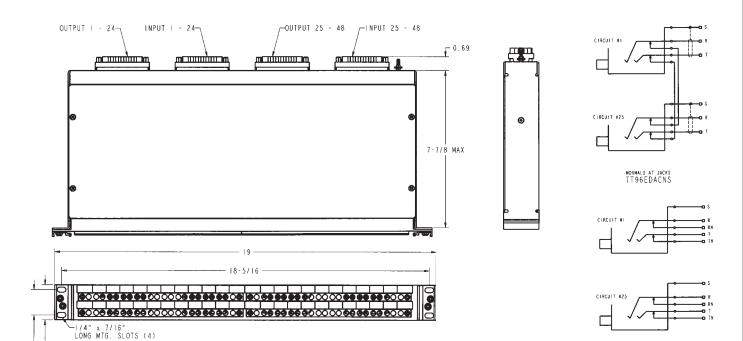
<b>Part Number</b>	Description
516-090-000-301	90 Pin male w/ screw
516-090-000-302	90 Pin male w/ nut
516-120-000-101	120 Pin male w/ screw
516-120-000-102	120 Pin male w/ nut
516-290-500	Terminal solder-style
516-290-590	Terminal crimp-style

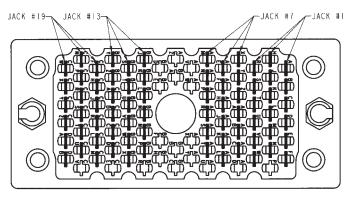
Part Number	Type of Jack	No. of Jacks	Description
TT96EDACNO	TT	96	Normals Brought Out (120 pin EDAC)
TT96EDACNS	TT	96	Normals Strapped (90 pin EDAC)



NORMALS OUT TT96EDACNO

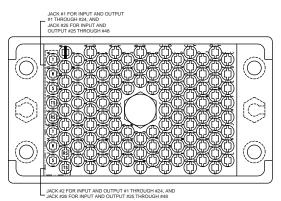
# TT96 EDAC Series 21





Standard Audio Configuration Wiring (S.A.C.) 90 Pin Plug Connector (Normals at jacks)

90 PIN CONNECTOR PIN-OUT					
JACK No.	TIP	RING	SLEEVE		
1	A	Н	R		
	JACKS #2 THRU #6 PATTERN CONTINUES TO F,N,W				
7	χ	AE	AM		
	JACKS #8 THRU #12 PATTERN CONTINUES TO AC,AL,AT				
13 BJ BS BY		BY			
JACKS #14 THRU #18 PATTERN CONTINUES TO BP,BX,CD					
I9 CF		CN	CW		
	JACKS #20 THRU #24 PATTERN CONTINUES TO CM,CU,DB				



Standard Audio Configuration Wiring (S.A.C.) 120 Pin Plug Connector (Normals brought out)

JACK No.	TIP	RING	SLEEVE	TIP SHUNT	RING SHUNT
JACK NO.	111	RINO	SLEEVE	TIT SHUNT	KING SHUN
1	A	В	С	D	E
		JACKS #	2 THRU #6		
	PATTERN	CONTINUES 7	TO AN, AM, .	AL, AK, AJ	
7	AH	AF	AE	AD	AP
	JACKS #8 THRU #12				
	PATTERN	CONTINUES '	TO BN, BP,∣	BW, BV, BU	
13	BT	BS	BR	BX	BY
		JACKS #1	4 THRU #18		
	PATTERN	CONTINUES 7	ΓO CΧ, DΗ,	DF, DE, DD	
19	DC	DB	DA	CZ	CY

DIMENSIONS ARE FOR REFERENCE ONLY

L 1-3/4 MAX

L 1-1/4 MAX

Inch





5555 North Elston Avenue / Chicago, IL 60630 Phone: 773-792-2700 / Fax: 773-792-2129

### TTP96K Patchkit Series

#### **Features and Benefits**

- Kit features 96 TT jacks in one rack space (1.75" high) or two rack spaces (3.5" high)
- Jack blocks can be removed from the front for easy soldering
- Dust tray limits dirt, dust and contamination of jack terminals
- Wire management straps are adjustable and reusable
- Attractive, corrosion resistant nickel-plated jacks
- Steel frame jack for superior jack life
- Extra wide labeling strips provide maximum space
- Rugged, attractive black anodized aluminum face will not break or rust
- Three jack configurations available for the exact switching arrangement you need: full normal, half normal, and non-normal (open circuit)
- Fanned solder terminals for easier solder connections
- Gold switching contacts for longterm reliability in normal-through connections

#### **Specifications**

#### **Materials**

#### **Jacks**

Frame: Nickel-plated steel Bushing: Nickel-plated brass Tip, Ring and Shunt Springs: Nickel silver with welded contacts

Assembly Screws: Nickel-plated

steel

Welded Contacts: Gold alloy

Front Channel: Black anodized

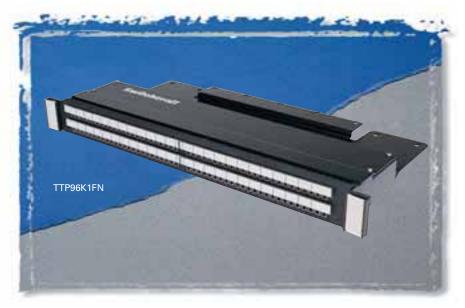
aluminum

Frame: C.R.S. black epoxy painted Designation Strips: Black

polycarbonate 94V-0 Designation Strip Covers: Clear

polycarbonate

polyester



The TTP96K Patchkit Series offers the end user a rugged cable tray to support rear cabling. Heavy duty construction takes weight off the back of the jacks for increased reliability. Available in 1.75" or 3.5" height versions.

#### Mechanical

Life: 30.000 cycles Insertion Force: 7 lbs. maximum Withdrawal Force: 1 lb. minimum Environmental: 0°C to +50°C

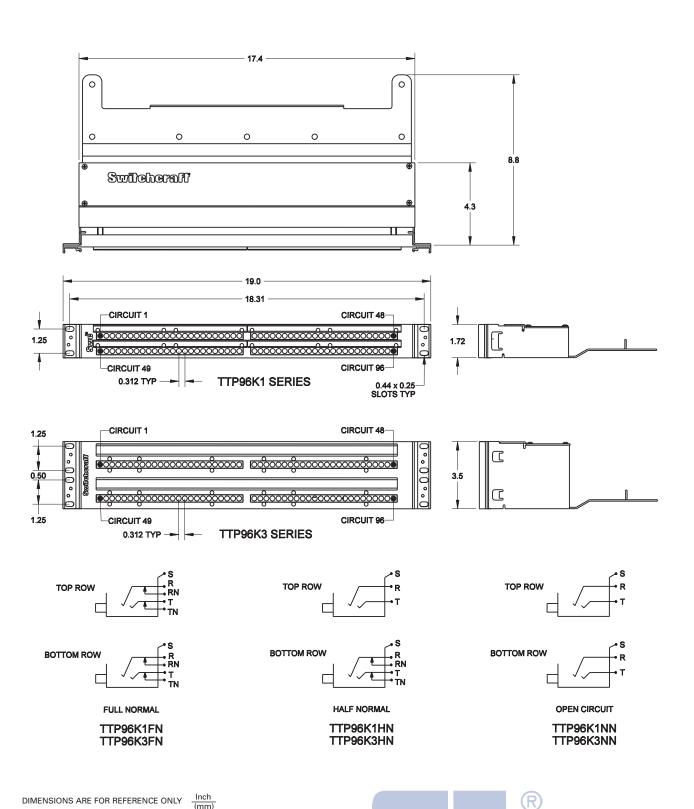
#### **Electrical**

Contact Resistance: 30 milliohms maximum initial Insulation Resistance: 10,000 megohms maximum Dielectric Withstanding Voltage: 500VAC at 60 Hz Working Voltage: 140VDC maximum Current Rating: 100 milliamps

Part Number	Type of Jack	No. of Jacks	Description
TTP96K1FN	TT	96	1.75" High, full normals
TTP96K1HN	TT	96	1.75" High, half normal
TTP96K1NN	TT	96	1.75" High, no normals
TTP96K3FN	TT	96	3.5" High, full normals
TTP96K3HN	TT	96	3.5" High, half normals
TTP96K3NN	TT	96	3.5" High, no normals



# TTP96K Patchkit Series 23

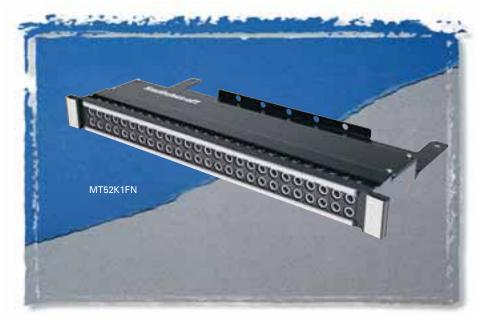




### MT48K/MT52K Patchkit Series

#### **Features and Benefits**

- Kit features 48 1/4" longframe jacks in one rack space (1" high) or in two rack spaces (3" high) or 52 1/4" longframe jacks in one rack space (1" high)
- Allows user to add cable and termination panel
- Removable jack panel from the front allows easy soldering of wire connections
- Jacks have gold switching contacts
- Fanned solder terminals for easier soldering
- Offset ground lugs allow easy bussing of ground with one wire
- Jacks have a nickel-plated frame and assembly screws
- Wire management straps are reusable and adjustable



The MT48/52K Patchkit Series offers the end user a rugged cable tray to support rear cabling. Heavy duty construction takes weight off the back of the jacks for increased reliability. Available in 1.75" or 3.5" height versions.

#### **Specifications**

#### **Materials**

#### Jacks

Frame: Stamped nickel-plated

Bushing: Nickel-plated brass Tip, Ring and Shunt Springs: Nickel silver with welded contacts

Assembly Screws: Nickel-plated

Welded Contacts: Gold alloy

Front Panel: Thermoplastic Frame: C.R.S. black epoxy paint Designation Strips: Black polycarbonate 94V-0 Designation Strip Covers: Clear polycarbonate

#### Mechanical

Life: 30,000 cycles

Insertion Force: 7 lbs. maximum Withdrawal Force: 1 lb. minimum

Operating: 0°C to +50°C

#### **Electrical**

Contact Resistance: 30 milliohms maximum initial

Insulation Resistance: 10,000 megohms maximum

Dielectric Withstanding Voltage:

500VAC at 60 Hz Working Voltage: 140VDC

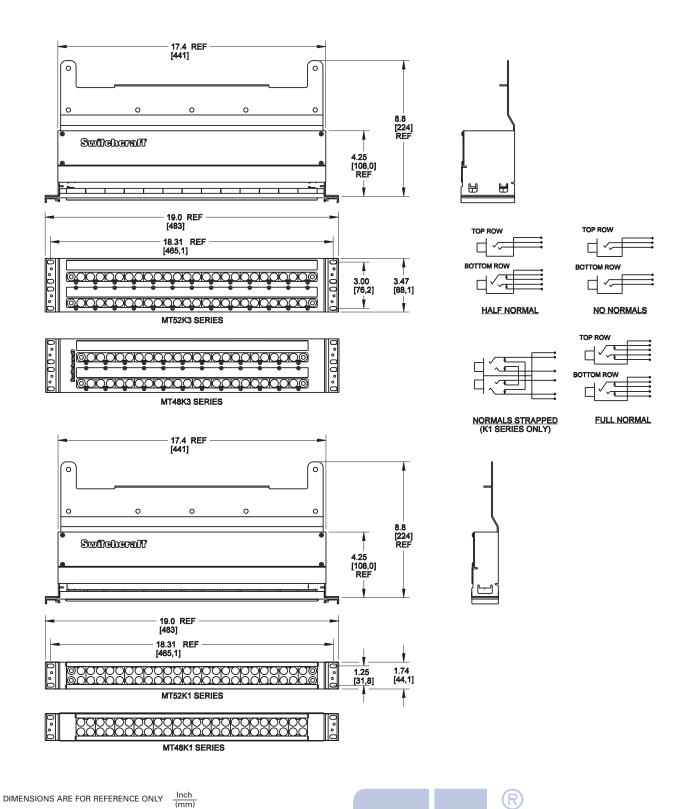
maximum

Current Rating: 100 milliamps

Ordorning initio	illiacioni			
Part Number	Type of Jack	No. of Jacks	Height	Description
MT48K1NS	MT	48	1.75"	Normals strapped
MT48K1FN	MT	48	1.75"	Full normals
MT48K1HN	MT	48	1.75"	Half normals
MT48K1NN	MT	48	1.75"	No normals
MT52K1NS	MT	52	1.75"	Normals strapped
MT52K1FN	MT	52	1.75"	Full normals
MT52K1HN	MT	52	1.75"	Half normals
MT52K1NN	MT	52	1.75"	No normals
MT48K3FN	MT	48	3.5"	Full normals
MT48K3HN	MT	48	3.5"	Half normals
MT48K3NN	MT	48	3.5"	No normals
MT52K3FN	MT	52	3.5"	Full normals
MT52K3HN	MT	52	3.5"	Half normals
MT52K3NN	MT	52	3.5"	No normals



# MT48K/MT52K Patchkit Series 25

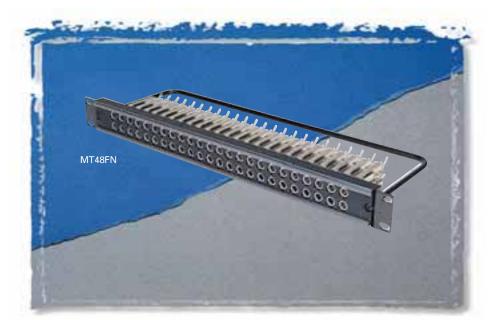




# 26 MT48/MT52 Patchbay Series

#### **Features and Benefits**

- Units feature either 48 or 52 MT Jax®
- Steel frame jacks for superior jack life
- Attractive, corrosion resistant nickel-plated jacks
- Gold switching contacts for long-term reliability in normalthrough connections
- Offset ground terminal for ease in making common ground buss connections
- Fanned solder terminals for easier solder connections
- Cable tie bar takes the weight of cables off the jacks
- Four jack configurations available for the exact switching arrangement: full normal, half normal, non-normal, and normals strapped



The MT48/52 Series patchbays offer a rugged cable tie bar to support rear cabling. Also available is the normals strapped configuration which has the shunts or normals tied together, top to bottom jacks.

#### **Specifications**

#### **Materials**

#### **Jacks**

Frame: Steel, nickel-plated Bushing: Brass, nickel-plated Springs: Nickel silver, solder lugs Ground Terminal: Nickel silver, solder lugs

Switching Contacts: Welded,

gold alloy

Insulation: Phenolic spacers, rigid PVC tubing through stack Screws: Steel, nickel-plated

#### Panel

Jack Panel: Thermoplastic Cable Support Bracket: 5/16" diameter black epoxy painted steel rod

Screws (designation strip): Steel, black zinc-plated

Screws (mounting jack): Steel, nickel plated

Kwik-change® Designation Strip: Extruded aluminum, black anodized

Marking Strip:

White plastic, matte finish Marking Strip Cover: Clear, extruded plastic

#### Mechanical

Life: 30,000 cycles Insertion Force: 7 lbs. maximum Withdrawal Force: 1 lb. minimum

Operating: 0°C to +50°C

#### **Electrical**

Contact Resistance: 30 milliohms

maximum initial

Insulation Resistance: 10,000

megohms maximum

Dielectric Withstanding Voltage:

500VAC at 60 Hz Working Voltage: 140VDC

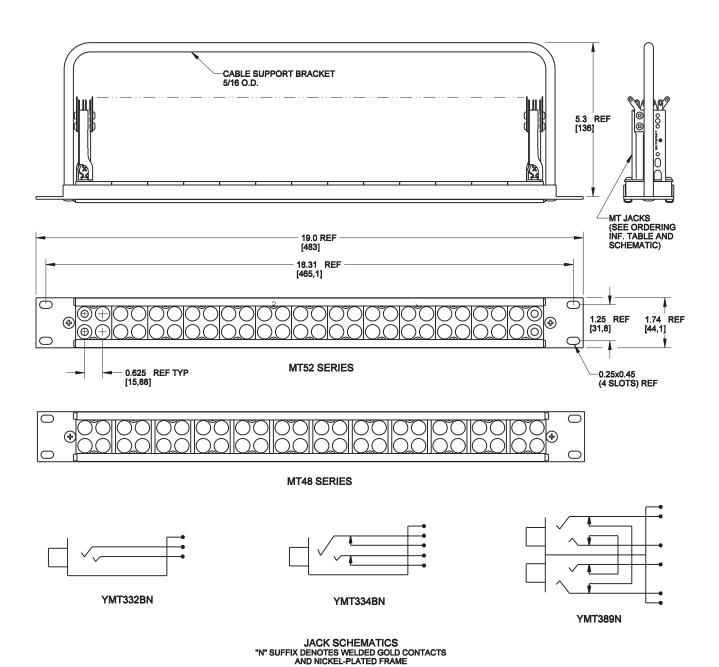
maximum

Current Rating: 100 milliamps

Part Number	Type of Jack	No. of Jacks	Description
MT48FN	MT	48	Full normals
MT48HN	MT	48	Half normals
MT48NN	MT	48	No normals
MT48NS	MT	48	Normals strapped
MT52FN	MT	52	Full normals
MT52HN	MT	52	Half normals
MT52NN	MT	52	No normals
MT52NS	MT	52	Normals strapped



# MT48/MT52 Patchbay Series 27





### TTP96AS Patchbay Series

#### **Features and Benefits**

- Unit features 96 TT jacks
- Attractive, corrosion resistant nickel-plated jacks
- Steel frame jack for superior jack life
- Extra wide labeling strips provide maximum space
- Rugged cable tie bar takes the weight of cables off the jacks
- Rugged, attractive black anodized aluminum face will not break
- Three jack configurations available for the exact switching arrangement you need: full normal, half normal, and open circuit panel
- Fanned solder terminals for easier solder connections
- Offset ground terminal for ease in making common ground buss connections
- Gold switching contacts for long-term reliability in normalthrough connections

#### **Specifications**

#### **Materials**

#### Jacks

Frame: Steel, nickel-plated Bushing: Nickel-plated copper alloy Springs: Copper alloy solder lugs Ground Terminal: Steel, tin electrodeposited Switching Contacts: Welded, gold alloy inlay over palladium base Insulation: Rigid plastic spacers, rigid PVC tubing through stack

Screws: Steel, plated

#### Panel

Frame: Black anodized aluminum Inserts: Polyester, glass filled,

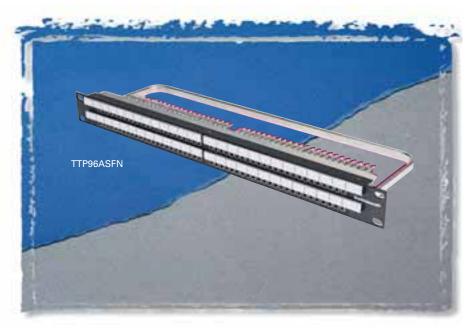
94V-0

Cable Support Bar: Cold rolled

steel, nickel-plated

Designation Strips: Thermoplastic,

94V-0



The TTP96AS Series of patchbays offer a rugged cable tie bar to support rear cabling.

Designation Strip Covers: Clear thermoplastic, SE-1 Marking Strip: Rigid vinylite Jack Mounting Screws: Steel, plated Screws: Steel, black plated

#### Mechanical

Life: 30,000 cycles Insertion Force: 7 lbs. maximum Withdrawal Force: 1 lb. minimum Environmental: 0°C to +50°C

#### **Electrical**

Contact Resistance: 30 milliohms

maximum initial

Insulation Resistance: 10,000

megohms maximum

Dielectric Withstanding Voltage:

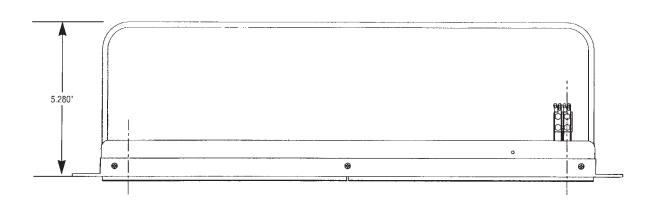
500VAC at 60 Hz Working Voltage: 140VDC maximum

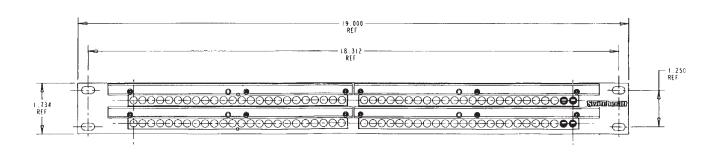
Current Rating: 100 milliamps

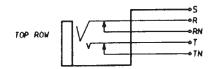
Part Number	Type of Jack	No. of Jacks	Description
TTP96ASFN	TT	96	Full normals
TTP96ASHN	TT	96	Half normals
TTP96ASNN	TT	96	No normals

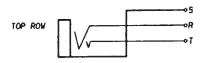


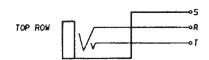
# TTP96AS Patchbay Series 29

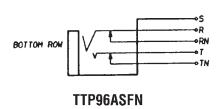


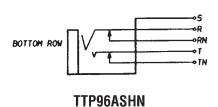


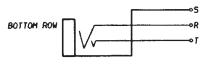












TTP96ASNN

DIMENSIONS ARE FOR REFERENCE ONLY



5555 North Elston Avenue / Chicago, IL 60630 Phone: 773-792-2700 / Fax: 773-792-2129

R

### **ID HPC Patchbay Series**

#### **Features and Benefits**

- Available in 1RU or 2RU versions
- Available with or without connectors
- HPC Series connectors are compatible with Neutrik Speakon® connectors
- Cable tie bar takes weight of the cables off the terminations
- Rugged aluminum channel
- Silk-screen designation area makes it easy to re-label channels

#### **Panel Materials**

Housing: Thermoplastic UL 94V-0 rated

Contacts: Silver-plated over

copper alloy

Frame: Aluminum, black anodized Cable Tie Bar: Steel, black epoxy

#### **HP Connector Specifications**

#### Mechanical

Shock: Per Mil-Std 202, Method 213B, Cond. K Vibration: Mil-Std 202, Method 201A

Life: 1,000 rotational cycles Cable Range (cord mount): 10AWG, 0.560" cable OD maximum

#### **Electrical**

Voltage Rating: 1,500 AC RMS, per Mil-Std 202, Method 301 Current Rating (Faston® terminals): 50A RMS w/10AWG wire, normal ambient, per UL 1977 Current Rating (PC terminals): 30A per UL 1977

Contact Resistance:  $1m\Omega$ ,  $1.5m\Omega$  after 1,000 insertion/withdrawals Insulation Resistance:  $.2T\Omega$ 

#### **Environmental**

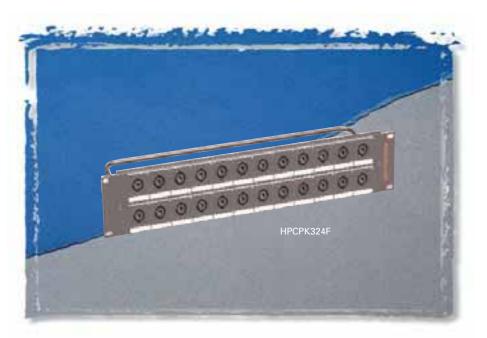
Salt Spray: Mil-Std 202, Method 101D, Cond.B

Thermal Shock: Mil-Std 202, Method 107G

Temperature Limits: -55°C to +85°C Moisture Resistance: Mil-Std 202,

Method 106E

Life @ Ambient Temperature: Mil-Std 202, Method 108A Touchproof: IEC 65 and 1010-1 IP Rating: IEC 529, IP 25



The HPC Patchbay features a 19" rack unit loaded with HPC Series connectors. Available with either 0.250" Faston® terminals or 0.187" Faston® terminals. One rack unit height versions come with 12 HPC connectors, two rack unit height versions come with 24 HPC connectors. All versions have a rugged cable tie bar, which takes the weight of the cabling away from the connections.

#### **Materials**

Housings: Thermoplastic UL 94V-0 rated

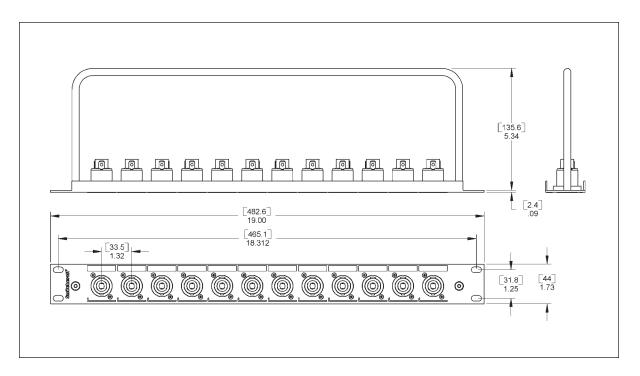
Seal Rings: Thermoplastic rubber Contacts: Silver-plated over

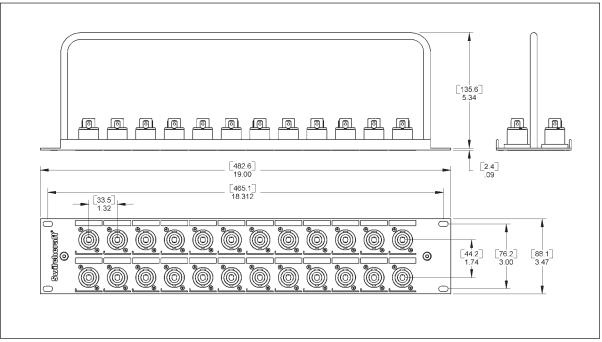
copper alloy

Part Number	Height	Description	
HPCPK112F	1.75"	12 connectors, 0.250" Fastons	
HPCPK112F1	1.75"	12 connectors, 0.187" Fastons	
HPCPK1B	1.75"	Blank panel	
HPCPK324F	3.50"	24 connectors, 0.250" Fastons	
HPCPK324F1	3.50"	24 connectors, 0.187" Fastons	
НРСРК3В	3.50"	Blank panel	



# **HPC Patchbay Series** 31





# **32 Q-G<sup>®</sup> Patchbay Series**

#### **Features and Benefits**

- Available in 1RU or 2RU versions
- Available with or without the connectors
- E Series connectors are silver-plated,
   3 pins/contacts with black finish
- Cable tie bar takes the weight of the cables off the solder terminations
- Rugged aluminum channel increases durability
- Silk-screen designation area makes it easy to re-label channels

#### **Specifications**

#### **Materials**

#### Connectors

Housing: Die-cast, black velvet finish Inserts: Glass-filled thermoplastic Pin/Contacts: Copper alloy, silver-plated

Latch Release: Steel, nickel-plated Insert Locking Cam: Die-cast zinc

#### Frame

Aluminum, black anodized

### Cable Tie Bar

Steel, black epoxy



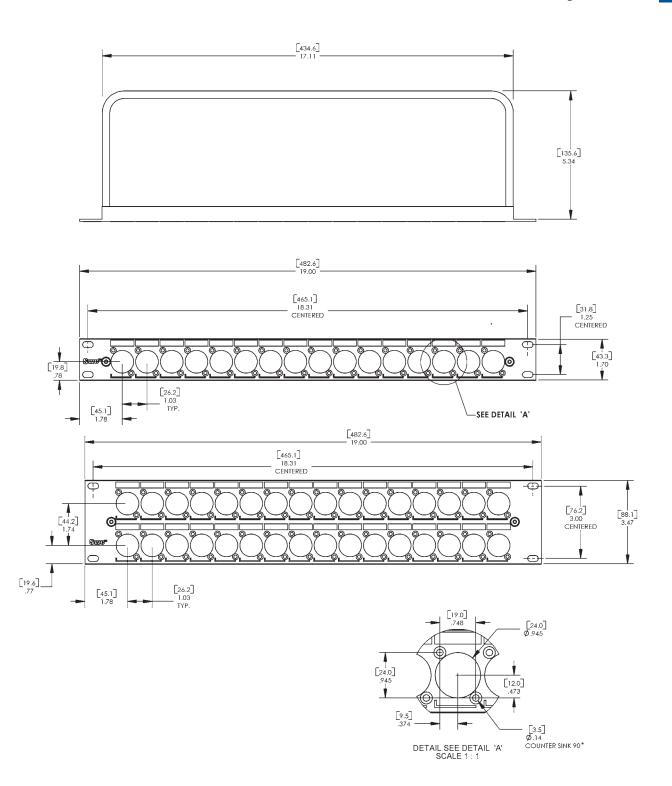
The QG® Patchbay features a 19" rack unit loaded with E Series QG® connectors. These XLR's have the same panel cut-out, male or female, silver-plated pins or contacts, and a black finish. All connectors have solder cup terminals for easy soldering and the inserts are removable from the back, allowing for easy changes. The one rack unit height version comes with 16 male, or 16 female, or 8 male and 8 female connectors. The two rack unit version comes with 16 male and 16 female connectors. We also offer the unit without connectors, but with the panel cut-outs already punched out.

All versions have a rugged cable tie bar, which takes the weight of the cabling away from the solder connections.

<b>Part Number</b>	Height	Description
QGPK116FB	1.75"	16 female
QGPK116MB	1.75"	16 male
QGPK18M8FB	1.75"	8 male, 8 female
QGPK332MFB	3.5"	16 female( top), 16 male (bottom)
QGPK1B	1.75"	Blank panel
QGPK3B	3.5"	Blank panel



# Q-G<sup>®</sup> Patchbay Series 33



R



### 34 VPP Video Patchbay Series

#### **Features and Benefits**

- HD Series rated from DC to 3.0 GHz
- SD Series has a bandwidth from DC to 1.75GHz
- Black thermoplastic modules insulate jacks from chassis
- Jacks feature rugged heavy duty housings

#### **Video Jack Specifications**

#### **Electrical**

Rated Bandwidth: 3.0 GHz (HD), 1.75 GHz (SD)

Characteristic Impedance: 75 ohms

Return Loss: Better than –15 dB Insertion Loss: Better than –.5 dB Contact Resistance: Less than 20

milliohms

Termination Resistance:

75 W, ±1%

Center Conductor: Accepts .090

pin diameter

#### Mechanical

Mechanical Shock: Per MIL-STD-202, Method 213, Test condition I Vibration: Per MIL-STD-202, Method 201

Life Cycle: 30,000

#### **Materials**

Housing: Zinc alloy, nickel plated Center Contacts: Copper alloy, gold plated

Switching Springs: Copper alloy, gold plated

**Grounding Contacts:** 

HD Series - Copper alloy, gold plated

SD Series - Copper alloy, nickel plated

Insulators: Thermoplastic, UL 94V-0 rated

#### **Environmental**

Operating Temperature: – 40°C to 65°C

Storage Temperature:

- 55°C to 85°C

Thermal Shock:

Per MIL-STD-202, Method 107 Moisture and Humidity:

Per MIL-STD-202, Method 106



The VPP Series video patchbays offer a wide variety of options for video patching. The HD Series meets SMPTE 292M specifications for high definition video signaling, covering a bandwidth range from DC to 3.0GHz. The SD Series is perfect for serial digital, with a bandwidth from DC to 1.75GHz. Both come in either terminated or non-terminated, 24 or 26 jacks, 1.75" or 3.5" heights.

#### **Ordering Information**

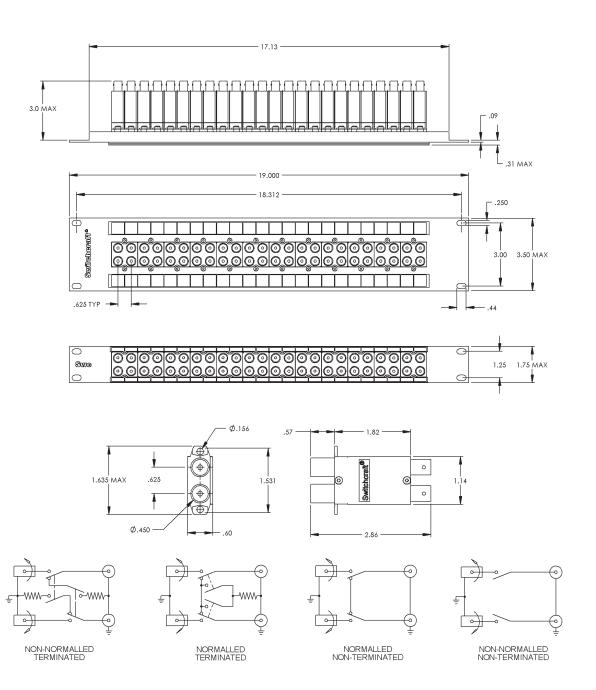
<b>Part Number</b>	Type of Jack	No. of Jacks	Height	Description
VPP24K1HD*75T	HD	24	1.75"	Terminated
VPP24K1HD*NT	HD	24	1.75"	Non-term
VPP24K1SD*75T	SD	24	1.75"	Terminated
VPP24K1SD*NT	SD	24	1.75"	Non-term
VPP26K1HD*75T	HD	26	1.75"	Terminated
VPP26K1HD*NT	HD	26	1.75"	Non-term
VPP26K1SD*75T	SD	26	1.75"	Terminated
VPP26K1SD*NT	SD	26	1.75"	Non-term
VPP24K3HD*75T	HD	24	3.5"	Terminated
VPP24K3HD*NT	HD	24	3.5"	Non-term
VPP24K3SD*75T	SD	24	3.5"	Terminated
VPP24K3SD*NT	SD	24	3.5"	Non-term
VPP26K3HD*75T	HD	26	3.5"	Terminated
VPP26K3HD*NT	HD	26	3.5"	Non-term
VPP26K3SD*75T	SD	26	3.5"	Terminated
VPP26K3SD*NT	SD	26	3.5"	Non-term

<sup>\*</sup> Add "N" for non-normalled version

#### See Page 36 for Individual Jacks Ordering Information



# **VPP Video Patchbay Series** 35





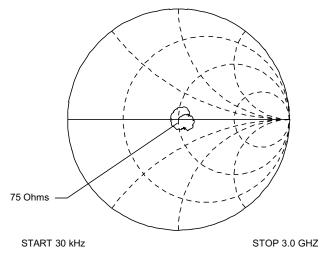
### **36** VPP Video Patchbay Series

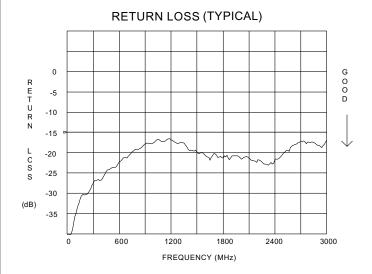
#### **Ordering - Individual Jacks**

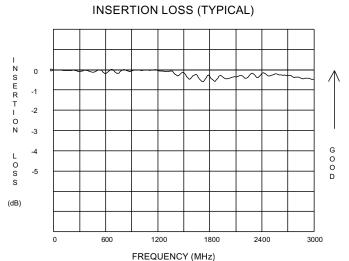
Part Number	Type	Description
VJHD*75TX	HD	Terminated
VJHD*NTX	HD	Non-terminated
VJSD*75TX	SD	Terminated
VJSD*NTX	SD	Non-terminated

<sup>\*</sup> Add "N" for non-normalled version

#### SMITH CHART (TYPICAL)







### **MVP Midsize Video Patchbay Series** 37

#### **Features and Benefits**

- Midsize video jacks rated from DC to 3 GHz
- 32 midsize jacks mounted either 1RU, 1.5RU or 2RU panel
- Available in terminated or non-terminated configurations

#### **Specifications**

#### **Materials**

Frame: Aluminum, black anodized Designation Strips: Vinvlite, white Designation Strip Covers: Lexan, transparent

Jack Inserts: Thermoplastic, UL 94V-0 rated

#### Midsize Video Jack **Specifications**

#### **Electrical**

Rated Bandwidth: 3.0 GHz Characteristic Impedance:

75 ohms

Return Loss: See Typical Return

Loss Chart

Insertion Loss: See Typical Insertion Loss Chart Contact Resistance: Less than 20 milliohms Termination Resistance:

75 W, ±1%

Center Conductor: Accepts .048

pin diameter

#### **Mechanical**

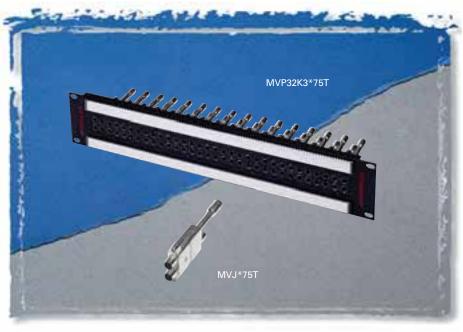
Mechanical Shock: Per MIL-STD-202. Method 213. Test condition I Vibration: Per MIL-STD-202,

Method 201 Life Cycle: 30,000

#### **Materials**

Housing: Zinc alloy, nickel plated Center Contacts: Copper alloy,

gold plated



The MVP Series video patchbays offer outstanding performance and high density. Patchbays consist of 32 jacks in either 1RU or 2RU heights, jacks come either terminated or non-terminated. These jacks are rated from DC to 3 GHz, and are rated at 30,000 lifecycles. The 1.5RU and 2RU come with cable tie bars.

Switching Springs: Copper alloy,

gold plated

Grounding Contacts: Copper alloy, gold plated BNC Insulators: Teflon

Actuators: Thermoplastic,

UL94V-0 rated

#### **Environmental**

Operating Temperature: – 40°C to 65°C Storage Temperature: – 55°C to 85°C

Thermal Shock:

Per MIL-STD-202, Method 107

Moisture and Humidity:

Per MIL-STD-202, Method 106

#### **Ordering Information**

Part Number	Type of Jack	Height	Description
MVP32K1*75T	Midsize	1.75"	Terminated
MVP32K1*NT	Midsize	1.75"	Non-terminated
MVP32K2*75T	Midsize	2.62"	Terminated
MVP32K2*NT	Midsize	2.62"	Non-terminated
MVP32K3*75T	Midsize	3.5"	Terminated
MVP32K3*NT	Midsize	3.5"	Non-terminated

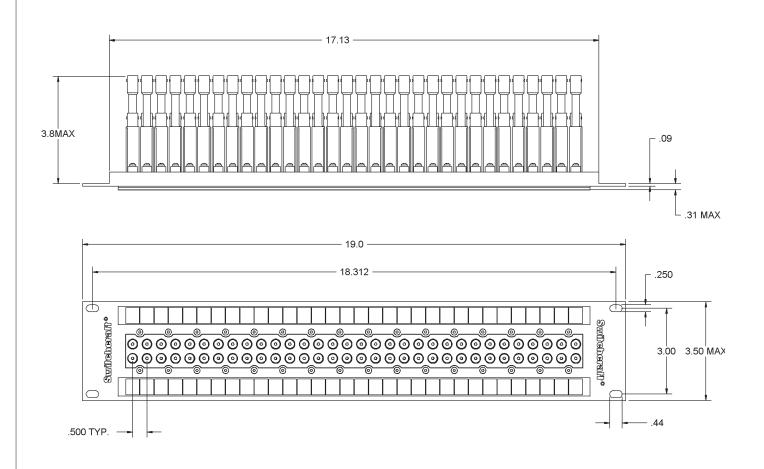
<sup>\*</sup> Add "N" for non-normalled version

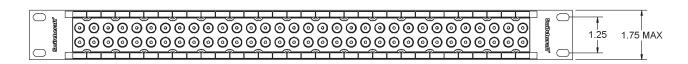
See Page 39 for Individual Midsize Jacks Ordering Information

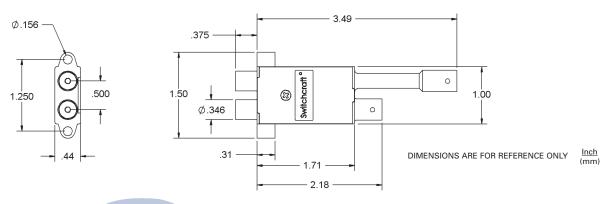




### **38 MVP Midsize Video Patchbay Series**









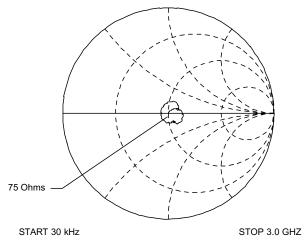
### **MVP Midsize Video Patchbay Series** 39

#### **Ordering - Individual Midsize Jacks**

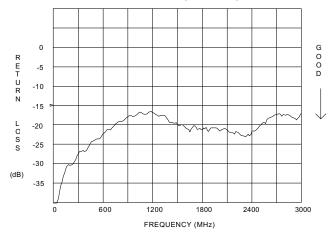
Part Number	Type	Description
MVJ*75T	HD	Terminated
MVJ*NT	HD	Non-terminated

<sup>\*</sup> Add "N" for non-normalled version

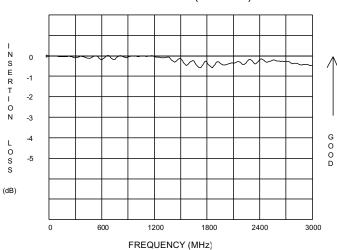
#### SMITH CHART (TYPICAL)



#### **RETURN LOSS (TYPICAL)**



#### **INSERTION LOSS (TYPICAL)**



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### **40 VAP Video/Audio Patchbay Series**

#### **Features and Benefits**

- Combines 13 video jacks and 26 long-frame audio jacks into one patchbay
- Available with either HD Series or SD Series video jacks
- All audio jacks are nickel-plated with steel frames and gold-plated switching contacts
- Audio modules consist of 4 YMT334BN jacks, video modules consist of 2 dual video jacks

#### **Video Jack Specifications**

#### **Electrical**

Rated Bandwidth: 2.4 GHz (HD), 1.75 GHz (SD)

Characteristic Impedance: 75 ohms Return Loss: Better than –15 dB Insertion Loss: Better than –.5 dB Contact Resistance: Less than 20 milliohms

Termination Resistance: 75 W, ±1% Center Conductor: Accepts .090 pin diameter

#### **Mechanical**

Mechanical Shock: Per MIL-STD-202, Method 213, Test condition I Vibration: Per MIL-STD-202,

Method 201 Life Cycle: 30,000

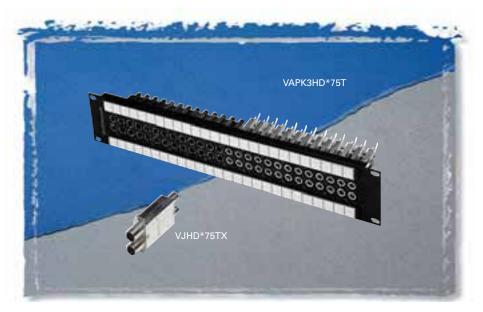
#### **Materials**

Housing: Zinc alloy, nickel plated Center Contacts: Copper alloy, gold plated Switching Springs: Copper alloy, gold plated Grounding Contacts: HD Series - Copper alloy,

gold plated SD Series - Copper alloy, nickel plated

Insulators: Thermoplastic, UL 94V-0 rated

See Page 36 For Video Jack Ordering Information and Page 69 For Audio Jack Ordering Information



The VAP Series combines audio and video in one convenient patchbay. Standard versions consist of 13 video jacks and 26 long-frame audio jacks into one unit. Options include HD Series video jacks which are rated from DC to 2.4GHz or SD Series rated from DC to 1.5GHz. Both come in either terminated or non-terminated jacks. The MT Style audio jacks all have nickel-plated steel frames and gold-plated switching contacts. Flared terminals make soldering easier. All audio jacks are T,R,S, TN, and RN. Individual modules are useful for custom configurations.

#### **Environmental**

Operating Temperature: - 40°C to 65°C

Storage Temperature: – 55°C to 85°C

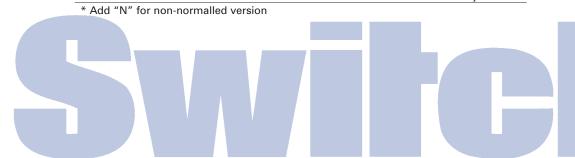
Thermal Shock: Per MIL-STD-202, Method 107 Moisture and Humidity: Per MIL-STD-202, Method 106

#### **Ordering Information**

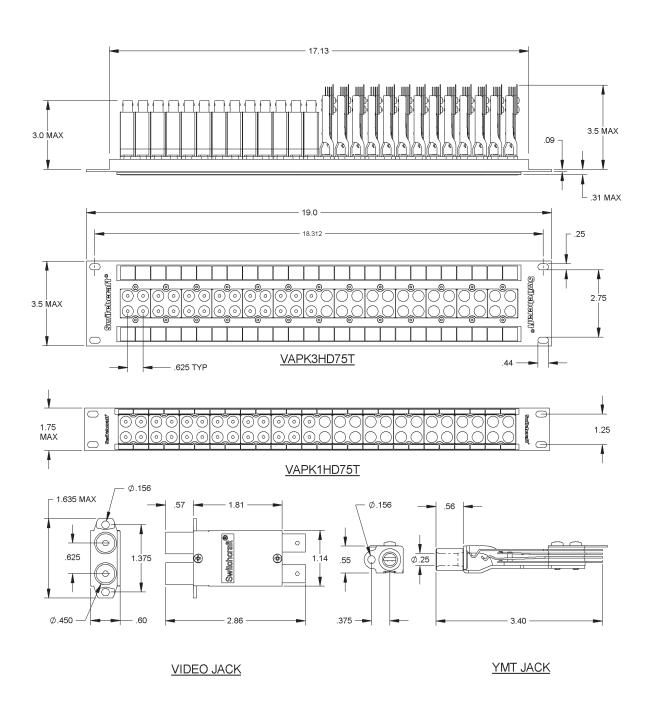
Ordering into	mation			
Part Number	Type of Jack	Height	Description	
VAPK1HD*75T	HD	1.75"	Terminated	
VAPK1HD*NT	HD	1.75"	Non-terminated	
VAPK1SD*75T	SD	1.75"	Terminated	
VAPK1SD*NT	SD	1.75"	Non-terminated	
VAPK3HD*75T	HD	3.5"	Terminated	
VAPK3HD*NT	HD	3.5"	Non-terminated	
VAPK3SD*75T	SD	3.5"	Terminated	
VAPK3SD*NT	SD	3.5"	Non-terminated	

#### **Modules**

VMAFN	MT Style	4- YMT334BN jacks
VMVHD*75T	HD	2- HD terminated jacks
VMVHD*NT	HD	2- HD non-terminated jacks
VMVSD*75T	SD	2- SD terminated jacks
VMVSD*NT	SD	2-SD non-terminated jacks



### VAP Video/Audio Patchbay Series 41





### 42 MVEZN Audio/Midsize Patchbay Series

#### **Features and Benefits**

- Combines 16 midsize video jacks and 24 dual EZ Norm bantam jacks.
- Video jacks are rated from DC to 3.0 GHZ.
- Rugged, attractive anodized aluminum frame for increased reliability.
- All audio jacks utilize EZ Norm technology for easy normal reconfiguration. A simple twist of the normal cam changes the normal function from full, to half, to no normals.
- Cable tie bar removes weight off the rear terminations.
- Large designation strips for easy patch point identification.

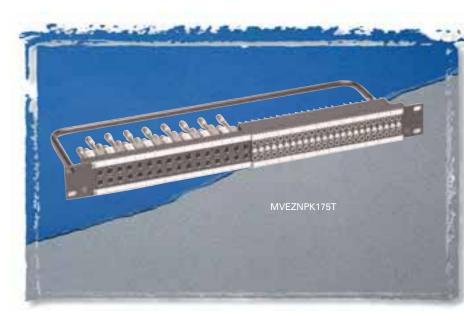
#### **Video Jack Specifications**

See page 39 for details

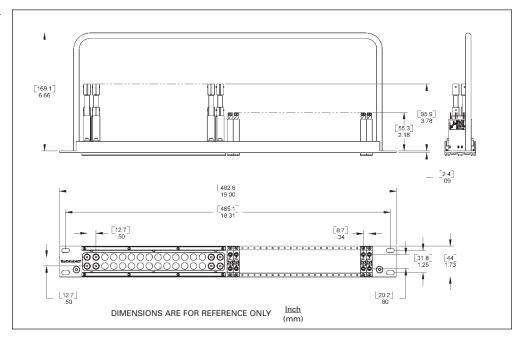
#### **Audio Jack Specifications**

See page 10 for details

Part Number: MVEZNPK175T



The MVEZN Series combines our popular MVJ midsize video jacks with our latest bantam jack, the EZ Norm. This patchbay has 16 video jacks and 24 dual EZ Norm bantam jacks. Perfect for application where a full video and audio patchbay are unnecessary. The video jacks are rated up to 3.0GHz, and the audio jacks meet 30,000 cycles, both in insertion/withdrawals and with the normal cam.





### MBPK Video/Audio Patchbay Series 43

#### **Features and Benefits**

- Combines 16 midsize video jacks and 48 TT bantam audio jacks.
- Video jacks are rated from DC to 3.0 GHZ.
- All audio jacks are nickel-plated with steel frames and gold-plated crossbar switching contacts.
- Rugged, attractive anodized aluminum frame for increased reliability.
- Large designation strips for easy patch point identification.
- Audio jacks rated at 30,000 cycles.

#### **Video Jack Specifications**

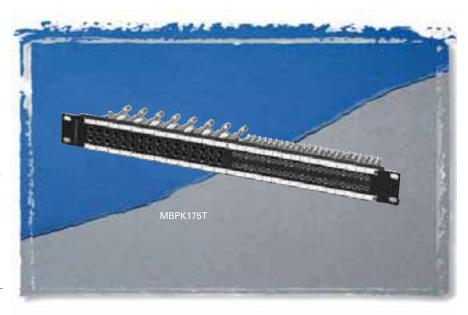
See page 39 for details

#### **Audio Jack Specifications**

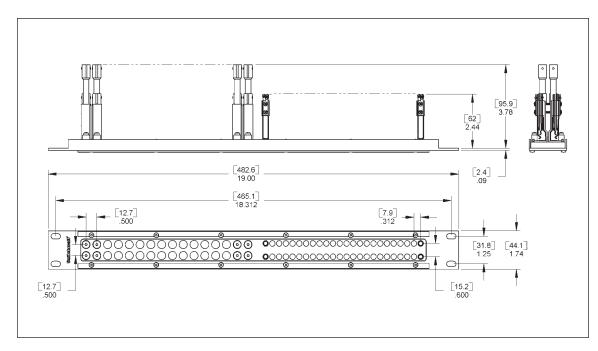
See page 69 for details

#### **Materials**

Frame: Aluminum, black anodized



The MBPK Series combines our popular MVJ midsize video jacks with our standard nickel-plated, steel frame audio jacks. This patchbay combines 16 midsize video jacks with 48 TT bantam audio jacks. Perfect for applications where a full video and audio patchbay are unnecessary. The video jacks are rated up to 3.0GHz, and the audio jacks meet 30,000 cycles. The audio jacks have T, R, S, TN, and RN terminals, and feature gold-plated contacts and flared solder terminals.



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# PATCHCORDS/MOLDED CABLES

### 44 Audio and Video Patchcords

#### Features and Benefits - Audio

- 110 ohm impedance-matched digital patchcords meet AES/EBU interface standards for digital patching
- Available with a variety of plug terminations, plug finishes, cord lengths and cable colors, the patchcords offer design flexibility
- Premium quality cable insures high reliability and greater flexibility

#### **Specifications**

Standard plug terminations are single 3-conductor 1/4" and TT® Nickel-plated plugs (standard), brass and gold-plated (optional) Cable jacket material is PVC.

Black is standard with other colors available

#### **Features and Benefits - Video**

- Designed and built to highest quality standards for efficient video signal transmission
- Cable type is RG59 (75W)
- Rugged nickel-plated handles with knurled area for positive finger grip
- Available in standard size or midsize styles

#### **Specifications**

#### **Materials**

Housing: Nickel-plated, copper alloy Contact Pin: Gold-plated, copper alloy Boot: Thermoplastic, in black and colors



A wide variety of audio patchcords and molded cable assemblies are available. Some of the more popular versions are the 18Q and 20Q Series for professional 1/4" patching, the TT\* and TTD Series for TT or bantam AES/EBU digital patching. The VP and VMP Series offer exceptional performance for video signal patching.



#### **Ordering Information**

#### Video Patchcords

video Patchcords			
Part Number	Туре	Part Number	Туре
VP3**	Standard	VMP2**	Midsize
VP4**	Standard	VMP3**	Midsize
VP5**	Standard	VMP4**	Midsize
VP6**	Standard	VMP5**	Midsize
VP7**	Standard	VMP6**	Midsize
VP8**	Standard	VMP7**	Midsize
VP9**	Standard	VMP8**	Midsize
VP10**	Standard	VMP9**	Midsize
VSPP	Standard	VMP10**	Midsize
VMP1**	Midsize	VMPP	Midsize

When ordering, add the following for cable color: BK-Black, BL-Blue, R-Red, O-Orange, Y-Yellow, GN-Green, P-Purple, GY-Gray



# PATCHCORDS/MOLDED CABLES

### Audio and Video Patchcords 45

#### **Ordering Information**

Part Num	nber Type	Plug Finge	er Description
<b>Audio Pat</b>	chcords		
18QD18	1/4" Mil-Type	Brass	2 foot, black nylon jacket
18QF18	1/4" Mil-Type	Brass	3 foot, black nylon jacket
18QH18	1/4" Mil-Type	Brass	4 foot, black nylon jacket
20QD20N*	1/4" Mil-Type	Nickel	2 foot, nylon jacket
20QF20N*	1/4" Mil-Type	Nickel	3 foot, nylon jacket
20QH20N*	1/4" Mil-Type	Nickel	4 foot, nylon jacket

When ordering, add the following for cable color: 0-Black, 2-Red, 5-Green, 6-Blue

TT122	TT or Bantam	Brass	1 foot, molded gray jacket
TT124	TT or Bantam	Brass	2 foot, molded gray jacket
TT126	TT or Bantam	Brass	3 foot, molded gray jacket
TT127	TT or Bantam	Brass	4 foot, molded gray jacket
TT128	TT or Bantam	Brass	5 foot, molded gray jacket

#### **AES/EBU 110 Ohm Digital Single Plug Patchcords**

	9		9	
TT1*	TT or Bantam	Nickel	1 foot, molded	
TT2*	TT or Bantam	Nickel	2 foot, molded	
TT3*	TT or Bantam	Nickel	3 foot, molded	
TT4*	TT or Bantam	Nickel	4 foot, molded	
TT5*	TT or Bantam	Nickel	5 foot, molded	
TT6*	TT or Bantam	Nickel	6 foot, molded	
TT7*	TT or Bantam	Nickel	7 foot, molded	
TT8*	TT or Bantam	Nickel	8 foot, molded	
TT9*	TT or Bantam	Nickel	9 foot, molded	
TT10*	TT or Bantam	Nickel	10 foot, molded	

#### AES/EBU 110 Ohm Digital, or RS422 Dual Plug Patchcords

TTD1*	TT or Bantam	Nickel	1 foot, molded	
TTD2*	TT or Bantam	Nickel	2 foot, molded	
TTD3*	TT or Bantam	Nickel	3 foot, molded	
TTD4*	TT or Bantam	Nickel	4 foot, molded	
TTD5*	TT or Bantam	Nickel	5 foot, molded	
TTD6*	TT or Bantam	Nickel	6 foot, molded	
TTD7*	TT or Bantam	Nickel	7 foot, molded	
TTD8*	TT or Bantam	Nickel	8 foot, molded	
TTD9*	TT or Bantam	Nickel	8 foot, molded	
TTD10*	TT or Bantam	Nickel	10 foot, molded	

When ordering, add the following for cable color: BK-Black, BL-Blue, R-Red, O-Orange, Y-Yellow, GN-Green, P-Purple, GY-Gray

#### **Ordering Information**

Description
Cables
3 foot, 5 pin DIN, molded black
6 foot, 5 pin DIN, molded black
10 foot, 5 pin DIN, molded black
15 foot, 5 pin DIN, molded black

Uses 4 cond., 24 awg, PVC outer jacket, braided shielded cable

#### 1/4" Cables

1/4 Cables	
05AD05	2 foot, mono, male to male
05AK05	6 foot, mono, male to male
05AN05	10 foot, mono, male to male
05AU05	25 foot, mono, male to male
05AN15	10 foot, mono, male to RA male
05AN80	10 foot, mono, male to female
05AU80	25 foot, mono, male to female
10BF10	3 foot, stereo, male to male
10BK10	6 foot, stereo, male to male
10BN10	10 foot, stereo, male to male
15AK15	6 foot, mono, RA male to RA male
RCA	
25AF25	3 foot, male to male
25AK25	6 foot, male to male
25AN25	10 foot, male to male
25AK82	6 foot, male to female
30AK30	6 foot, RA male to RA male
30AN30	10 foot, RA male to RA male
30AR30	15 foot, RA male to RA male
1/4" to RCA	
05AK25	6 foot, 1/4" male to RCA male
05AN25	10 foot, 1/4" male to RCA male

Uses either single or 2 cond, 22awg, PVC outer jacket, braided shielded cable

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### **Q-G®** Audio Connector Series A, AA, AAA Cord Style Series

Switchcraft offers a wide range of cord style XLR connectors.

The A Series features a dual pressure plate strain relief mechanism to securely fasten the connector to the cable. The A Series is also available with FAS-DISCONNECT detent.

The AA Series features a 1-piece strain relief mechanism that clamps onto the outer jacket of the cable.

The AAA Series features a twist-on handle with a built-in strain relief mechanism and a pre-loaded insert. The new R Series offers the same strain relief system as the AAA Series.

#### **Specifications**

#### **Electrical**

Contact Resistance: 50 milliohm maximum, per pole Current Rating @ 125VAC: 3 pole - 15A, 4 pole -10A, 5 & 6 pole - 7.5A, 7 pole - 5A Insulation Resistance: 1,000 MW, minimum

Dielectric Withstanding Voltage: 1,000 V (rms)

Capacitance: ≤3pF between pins and ≤6 pF between pins and shell, maximum

#### Mechanical

Insertion/Withdrawal Forces: 10 lbs. maximum, 8 lbs. nominal/ 7 lbs. maximum, 5 lbs. nominal

#### **Materials**

Shell: Die-Cast zinc with nickel finish or black chrome Handle: Die cast with nickel finish or black chrome. Also black thermoplastic handle available O Ring: TPR (Thermoplastic rubber). Insert Insulation: Molded thermoplastic

Socket Contacts: Silver plated copper alloy tarnish resistant; bifurcated on 3 and 4 contact types. Gold is available.

Pin Contacts: Silver plated copper alloy.

See Page 56 for **Mechanical Drawings** 



Resists tarnishing, and provides excellent electrical conductivity. Gold is available.

Latch lock: High strength die cast zinc Multi-finger cable clamp and rubber gasket: TPR (Thermoplastic plastic & rubber)

Flex Relief: TPR (Thermoplastic rubber)

#### **Ordering Information**

Part Number	Style	Finish	Pins/ Contacts	Notes
A*F, A*M	Cord	Nickel	Silver	Standard Cable Clamp
A*FB, A*MB	Cord	Black	Silver	Standard Cable Clamp
A*FBAU, A*MBAU	Cord	Black	Gold	Standard Cable Clamp
A*FL, A*ML	Cord	Nickel	Silver	Standard cable clamp, large flex relief
AA*F, AA*M	Cord	Nickel	Silver	One piece cable clamp
AA*FB, AA*MB	Cord	Black	Silver	One piece cable clamp
AA*FBAU, AA*MBAU	Cord	Black	Gold	One piece cable clamp
AA*FL, AA*ML	Cord	Nickel	Silver	One piece cable clamp, large flex relief
AAA*FZ, AAA*MZ	Cord	Nickel	Silver	Twist-on metal handle
AAA*FBZ, AAA*MBZ	Cord	Black	Silver	Twist-on metal handle
AAA*FBAUZ, AAA*MBAUZ	Cord	Black	Gold	Twist-on metal handle
AAA*FPZ, AAA*MPZ	Cord	Nickel	Silver	Twist-on plastic handle
AAA*FPBZ, AAA*MPBZ	Cord	Black	Silver	Twist-on plastic handle
AAA*FPBAUZ, AAA*MPBAUZ	Cord	Black	Gold	Twist-on plastic handle

\* Available 3 - 7 pins or contacts



### Q-G<sup>®</sup> Audio Connector Series 47 B, C, D, E Panel Style Series



**Ordering Information** 

Part Number	Style	Finish	Pins/ Contact	s Notes
B*F, B*M	Panel	Nickel	Silver	Threaded Collar
B*FB, B*MB	Panel	Black	Silver	Threaded Collar
C*F, C*M	Panel	Nickel	Silver	Uses #5-40 mounting screws
C*FB, C*MB	Panel	Black	Silver	Uses #5-40 mounting screws
D*F, D*M	Panel	Nickel	Silver	Uses #5-40 mounting screws
D*FB, D*MB	Panel	Black	Silver	Rectangle housing
D*FBAU, D*MBAU	Panel	Black	Gold	Rectangle housing
D*FS, D*MS	Panel	Nickel	Silver	Rectangle housing, smooth finish
E3FSC, E3MSC	Panel	Nickel	Silver	Male/Female same panel cut-out
E3FSCB, E3MSCB	Panel	Black	Silver	Male/Female same panel cut-out
E3FSCBAU, E3MSCBAU	Panel	Black	Gold	Male/Female same panel cut-out

<sup>\*</sup> Available 3 - 7 pins or contacts

#### See Page 57 for Mechanical Drawings

Switchcraft also offers a wide range of panel mount connectors.

The B Series features a round housing with a threaded collar for mounting. The female version requires a spanner wrench to tighten the connector to the chassis. Both male and female are available with black finish.

The C Series is another round housing panel mount, which has 0.140" mounting holes requiring #5-40 screws to mount.

The D Series, our most popular version, is a rectangle housing panel mount. The standard Rawall finish resists scratching, while the optional satin finish offers a smooth finish for mounting on a brushed finished chassis.

The E Series offers a panel mount with quick release inserts. A small screwdriver is used to remove the inserts, allowing for easy gender changes. The male and female E Series fit into the same panel cut-outs.

The E Series is also available with PC terminals. Contact the factory for details.



## Q-G® Audio Connector Series J, K, P, R, T Wallplate, Gooseneck, Panel & Cord Style Series

The J and K Series are wallplates using the D Series receptacles pre-mounted. Available in single or dual connector versions.

The PD Series is a plastic panel mount series, using 94V-0 rated material. Both male and female mount into the same panel cut-out and are available in solder cup, straight PC, and right angle PC terminals.

Switchcraft also offers gooseneck connectors and cord plugs with on-off switches. The P Series are gooseneck connectors available in male or female, with optional black finishes. The male has external 5/8-27 threads, the female has internal 5/8-27 threads.

The new R Series incorporates the same strain relief system as the AAA Series. The insert can be offset at 45° to accommodate a wide variety of applications.

The T Series is similar to the A Series female cord plug, but offers a DPDT (2-C) locking on-off switch. The slide switch is rated at 500mA, 125V.



#### **Ordering Information**

Part Number	Style	Finish	Pins/ Contacts	Notes
J3FS	Wallplate	Nickel	Silver	Single D3F
K3FS	Wallplate	Nickel	Silver	Dual D3F's
P*F, P*M	Gooseneck	Nickel	Silver	Female ext. threads,
				male int.threads
P*FB, P*MB	Gooseneck	Black	Silver	Female ext. threads,
				male int.threads
PD3FSC1, PD3MSC1	Panel	Black	Silver	Plastic Housing
PD3FSC1AU, PD3MSC1AI	J Panel	Black	Gold	Plastic Housing
R*FZ, R*MZ	Cord	Nickel	Silver	Right Angle
R*FBZ, R*MBZ	Cord	Black	Silver	Right Angle
R*FBAUZ, R*MBAUZ	Cord	Black	Gold	Right Angle
T3F	Cord	Nickel	Silver	On-off switch

<sup>\*</sup> Available 3 - 7 pins or contacts

See Pages 58 and 59 for Mechanical Drawings



### Tini-Q-G<sup>®</sup> Connector Series 49 Tini-Q-G® Cord & Panel Style Series



#### **Materials**

Housing: Plugs and Male Receptacles Copper alloy, nickel-plated; Female Receptacles — Die-cast zinc, nickel-plated Black Tini-Q-G® Housing: Copper alloy, black chrome-plated Pin and Socket Contacts: Copper alloy, silver-plated Flex Relief: Molded black thermoplastic elastomer Latch Button: Molded black thermoplastic

Release Lever and Mounting Washer: Steel, nickel-plated Standoff/Ground Terminal and Cable Clamp: Steel, electrotinned Inserts and Insulating Spacer: Molded, high strength thermoplastic Latch (Female): Copper alloy, nickel-plated Mounting Nut: Copper alloy. nickel-plated

#### **Ordering Information**

Part Number	Style	Finish	Pins/ Contacts	Notes
TA*F, TA*M	Cord	Nickel	Silver	Available in 3 - 6 pins or contacts
TA*FL, TA*ML	Cord	Nickel	Silver	Accommodates large cable, available in 3 - 8 pins or contacts
TA*FB, TA*MB	Cord	Black	Silver	Available in 3 - 6 pins or contacts
TB*M	Panel	Nickel	Silver	Male, round flange, threaded, available in 3 - 8 pins or contacts
TB*MB	Panel	Black	Silver	Male, round flange, threaded, available in 3 - 8 pins or contacts
TY*F	Panel	Nickel	Silver	Female, rectangle flange, available in 3 - 5 pins or contacts

See Page 59 for Mechanical Drawings

The Tini-QG Series is a miniature version of the standard QG Series. These "mini-XLR's" come in a wide variety of configurations. The standard TA Series cord plugs are available in 3-6 pins or contacts. The L versions, with their larger strain reliefs, are available in 3-8 pins or contacts. The TB and TY Series are panel mount connectors. The TB Series is a male connector, featuring a round panel cut-out and 3-8 pins. The TY Series is a female connector, featuring a rectangular housing and 3-5 contacts. The TA and TB Series are available with a black finish. Gold-plated contacts are available on all series. Contact the factory for details.

#### **Specifications**

#### **Electrical**

Contact Resistance: .010 ohms maximum after life (and after salt spray) Current Rating (Carry Only): 5A,

125 VAC (4A, 125 VAC on 5 circuit) based on 30°C maximum Insulation Resistance: 510.000 megohms minimum @ 500 VDC (initial); 10,000 megohms minimum (after humidity test) Dielectric Strength: 1,000V (rms)

#### Mechanical

Life: 5,000 operations minimum Solderability Standard: Meets EIA

RS-186-9E

Mechanical Shock: Meets Mil-Std-202, method 213B Vibration: Meets Mil-Std-202,

method 201A

Wire Size: #22 wire gauge solid; #24 wire gauge stranded

#### **Environmental**

Thermal Range: -55°C to +85°C Humidity: Meets Mil-Std-202, method 106D Thermal Shock: Meets

Mil-Std-202, method 107D Salt Spray: Meets Mil-Std-202,

method 101



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## HPC Connector Series HPC Panel Style Series

The HPC Series is a complete line of high power loudspeaker connectors that are completely compatible with the Neutrik® Speakon® 4 pole connector series. Included in the series are round and rectangular panel mounts, straight cord plugs, right angle cord plugs, and in-line cord plug, plus a barrel adapter.

The HPC panel mounts come with two different flange depths, either 0.100" or 0.200" depths. The 0.200" depth allows for easy rear mounting of the connector and maintains proper mating with the cord plug. Also, the panel mounts have two different Faston® terminal sizes, 0.187" and 0.250" wide. Both are rated at 50A, per UL 1977. The PC mount versions have either straight, right angle, or right angle with a mounting post. They are rated at 30A per UL 1977. The right angle PC mount version with the post allows for snap-in placement onto the PC board during wave soldering.

The HPC cord plugs are offered in straight, right angle, and an in-line version. All have 0.250" Faston® terminals, rated at 50A per UL 1977, which makes it easy to swap out plugs. The unique feature of the cord plugs is their "push to lock" design. They do not require a 1/4 turn to engage the contacts - simply push the connector in like an XLR. This feature eliminates the need to remember to turn the connector to make contact with the contacts. To disengage, simply push the latch lever forward and pull the connector out. The straight cord plug uses a twist on handle, while the in-line and right angle cord plugs use a snap-in handle. The in-line connector mates with both straight and right angle cord plugs.

For those who find it more convenient, we also offer a barrel adapter which mates with either straight or right angle cord plugs.



**Ordering Information** 

Ordering information			
Part Number	Style	Notes	
HPCP41F	Panel	Rectangle, 0.100" flange depth, 0.250" faston terms	
HPCP42F	Panel	Rectangle, 0.200" flange depth, 0.250" faston terms	
HPCP41F1	Panel	Rectangle, 0.100" flange depth, 0.187" faston terms	
HPCP42F1	Panel	Rectangle, 0.200" flange depth, 0.187" faston terms	
HPCP410PC	Panel	Rectangle, 0.100" flange depth, straight PC terms	
HPCP420PC	Panel	Rectangle, 0.200" flange depth, straight PC terms	
HPCP410RA	Panel	Rectangle, 0.100" flange depth, right angle PC terms	
HPCP420RA	Panel	Rectangle, 0.200" flange depth, right angle PC terms	
HPCPR41F	Panel	Round, 0.100" flange depth, 0.250" faston terms	
HPCPR42F	Panel	Round, 0.200" flange depth, 0.250" faston terms	
HPCPR41F1	Panel	Round, 0.100" flange depth, 0.187" faston terms	
HPCPR42F1	Panel	Round, 0.200" flange depth, 0.187" faston terms	
HPCPR410PC	Panel	Round, 0.100" flange depth, straight PC terms	
HPCPR420PC	Panel	Round, 0.200" flange depth, straight PC terms	

See Pages 61 and 62 for Mechanical Drawings



### **HPC Connector Series** 51 **HPC Cord, & Adapter Style Series**



**Ordering Information** 

<b>3</b>					
Part Number	Style	Notes			
HPCC4F	Cord	Straight with 0.250" faston terms			
HPCI4F	Cord	Inline with 0.250" faston terms			
HPCC4RAF	Cord	Right angle with 0.250" faston terms			

#### See Page 62 for Mechanical Drawings

#### **Specifications**

#### Mechanical (Panel and Cord Mounts)

Shock: Per Mil-Std 202, Method 213B, Cond. K Vibration: Mil-Std 202, Method 201A Life: 1,000 rotational cycles Cable Range (cord mount): 10AWG, 0.560" cable OD maximum

#### **Electrical** (Panel and Cord Mounts)

Voltage Rating: 1,500 AC RMS, per Mil-Std 202, Method 301 Current Rating (Faston® terminals): 50A RMS w/10AWG wire, normal ambient, per UL 1977

Current Rating (PC terminals): 30A per UL 1977

Contact Resistance:  $1m\Omega$ ,  $1.5m\Omega$ after 1,000 insertion/withdrawals Insulation Resistance:  $> 2T \Omega$ 

#### **Environmental** (Panel and Cord Mounts)

Salt Spray: Mil-Std 202, Method 101D, Cond. B

Thermal Shock: Mil-Std 202.

Method 107G Temperature Limits: -55°C to +85° C

Moisture Resistance: Mil-Std. 202, Method 106E

Life @ Ambient Temperature: Mil-Std 202, Method 108A Touchproof: IEC 65 and 1010-1 IP Rating: IEC 529, IP 25

#### **Materials** (Panel and Cord Mounts)

Housings:

Thermoplastic UL 94V-0 rated Seal Rings: Thermoplastic rubber Contacts: Silver-plated over copper alloy





### 52 EH Series Receptacles

The EH Series consist of different styles of popular connectors in our E Series housing. This allows the end user to punch one single hole size and populate wall plates, gang assemblies with different types of connectors. Connector styles include BNC feed-throughs, RCA feed-throughs, USB feed-throughs, IEEE 1394 Firewire feed-throughs, BNC to solder cup, and RCA to BNC.

#### **Features**

- Utilizes same panel cut-out as E Series QG connectors
- Rugged metal shells
- Available with a wide variety of popular feed-through connectors



**Ordering Information** 

Part Number	Description	
EHBNC2	BNC to BNC	
EHBNCSC	BNC to solder cup	
EHRCA2	RCA to RCA	
EHRCABNC	RCA to BNC	
EHUSB2	USB to USB	
EH13942	IEEE1394 to IEEE1394	
EHCAT62	Cat6 to Cat6	

Note: For black finish add 'B' suffix See Page 55 for Mechanical Drawings



### MIDI and 2500 Series 53

The 5-pin DIN connector has been adopted by the audio industry as the standard MIDI (Musical Instrument Digital Interface) connector. Switchcraft offers a wide variety of DIN and mini-DIN connectors, however, only the 5-pin DIN versions are shown in this catalog. The more popular versions used in the audio industry include straight metal, straight plastic, and right angle cord plugs, as well as metal chassis and plastic right angle PC mount versions.

The 2500 Series microphone connectors are still used in many retro-style microphones. Cable mount versions can accommodate cable OD's up to 0.281".

#### **Specifications**

#### **Materials**

Shell: Die-cast zinc alloy, nickel plated

Receptacle Mounting Flange:

Steel

Receptacle Body: Plastic Insert Material: Plastic Socket Contacts: Tin-plated Pin Contacts: Tin-plated

Switching Contacts: Silver-plated Cable Relief Bushing: Soft plastic





**Ordering Information** 

Part Number	Style	Notes
05BL5M	Cord	Male, straight, metal handle
05GM5M	Cord	Male, straight, plastic handle
05DL5M	Cord	Male, right angle, metal handle
57GB5F	Panel	Female
57PC5F	Panel	Female, right angle, PC mount
57PC5FS	Panel	Female, right angle, PC mount, shielded
2501F	Cord	Female, single contact, locking collar
2501M	Cord	Male, single contact, ext. threads
2501MP	Panel	Male, single contact, ext. threads

See Page 60 for **Mechanical Drawings** 





## 54 HP75BNC Series True 75 Ohm BNC Series

The HP75BNC Series is a true 75 Ohm impedance BNC connector series. All connectors meet stringent guidelines for top performance. The HP75BNC Series is available in a wide variety of cable types. All use standard crimping tools.

#### **Features and Benefits**

- True 75 Ohm impedance
- Rugged nickel-plated, machined housings
- Gold-plated center pins enhance performance

#### **Specifications**

#### **Electrical**

Contact Resistance: 75 Ohms Voltage Rating: 500 Volts RMS Return Loss: Less than -25 db at 3 GHz

Insulation Resistance: 5000 Megohms minimum

#### Mechanical

Lifecycles: 500 minimum
Center Contact Retention:
6 lbs. minimum
Coupling Mechanism:
100 lbs. minimum
Force to Engage:
2.5 lbs. maximum

#### **Environmental**

Thermal Range: -65°C to 165°C Moisture Resistance: Mil Std 202

Corrosion: Mil Std 202 Flammability: UL 94-V0 Vibration: Mil Std 202

Solvent Resistance: Mil Std 202

#### **Finish**

Body/Bayonet: Nickel-plated,

copper alloy Center Conductor: 50 mi gold-plated copper alloy

See Next Page for Mechanical Drawings

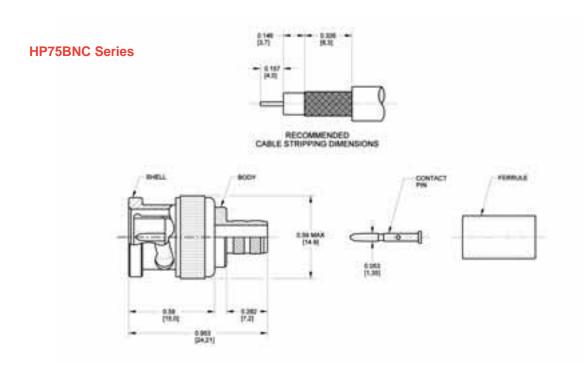


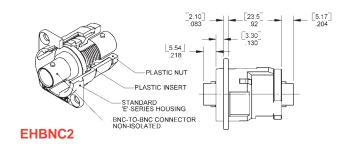
#### **Ordering Information**

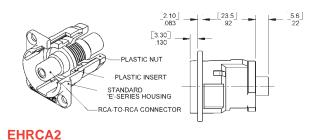
<b>Part Number</b>	Crimp Info	Cable Type
HP75BNC1	Pin .041 Hex	Belden 8241, 8279, 82241
	Ferrule .255	Gepco VJ59U
		Comm/Scope 5563
HP75BNC2	Pin .041 Hex Ferrule .324 Hex	Belden 8281, 8281B, 9141, 88281, 9231, 8141, 9118, 9248
		Gepco VP618PE, VP618PVC, VP6000
		Comm/Scope 7501, 7506
HP75BNC7	Pin .041 Hex	Belden 1694A, 1695A, 87120, 89120, 9066, 9114, 9659
	Ferrule .278 Hex	Gepco VSD2001, VSD2001TS
		Comm/Scope 5729 ,5765, 2227K, 2227V, 2229V, 2275V, 2276V, 2279V
HP75BNC9	Pin .041 Hex Ferrule .255 Hex	Belden 1505A, 1506A, 8212, 8241F, 9167, 9259, Gepco VPM2000, VPM2000TS, VPM2000TK Comm/Scope 2000, 5553, 5565, 5572
HP75BNC12	Pin .041 Hex	Belden 1855A, 1865A
	Ferrule .178 Hex	Gepco VDM230, VDM250, RGB230/250 Series Comm/Scope 7537, 7538

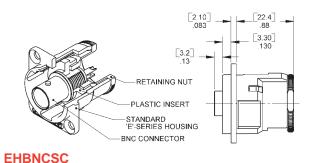


### **Connector Dimension Drawings** 55 **True 75 Ohm BNC Series, EH Series**

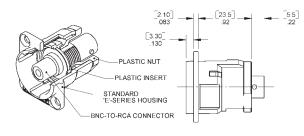








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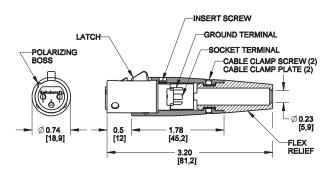
**EHRCABNC** 



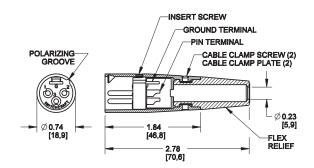
R

## Connector Dimension Drawings Q-G® Audio - A, AA, AAA Series

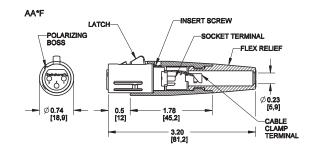
A\*F



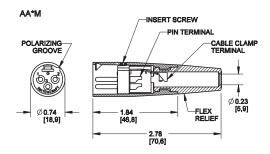
A\*M



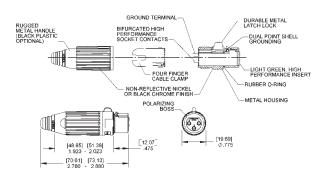
#### AA\*F



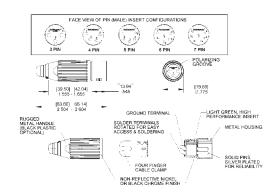
#### AA\*M



#### AAA\*FZ



#### AAA\*MZ

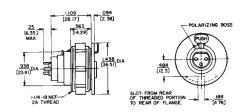


SWIG

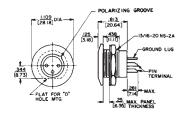
## Connector Dimension Drawings 57

Q-G® Audio - B, C, D, E Series

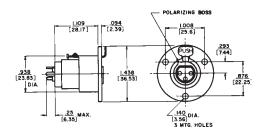
B\*F



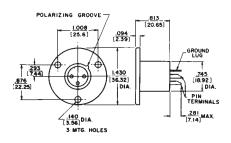
B\*M



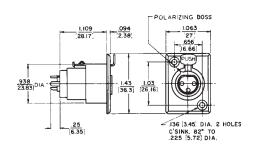
C\*F



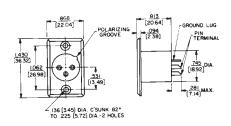
C\*M



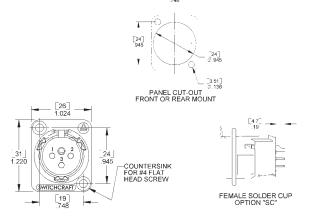
D\*F

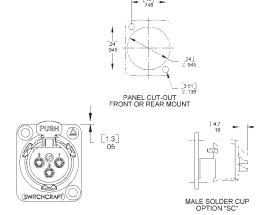


D\*M



#### E3FSC and E3MSC





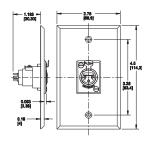
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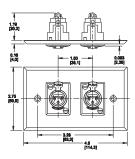


## Connector Dimension Drawings Q-G® Audio - J, K, P, R Series

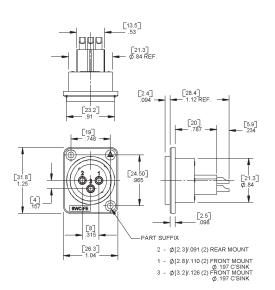
**J3FS** 



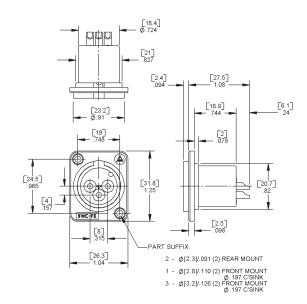
#### K3FS



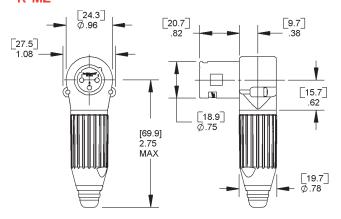
#### PD3FSC1AU



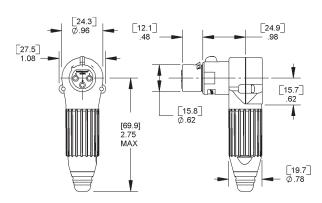
#### PD3MSC1AU





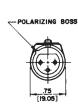


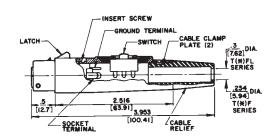
#### R\*FZ



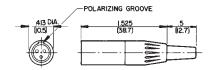
# Connector Dimension Drawings Q-G® Audio - T Series

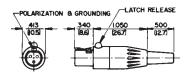
T3F



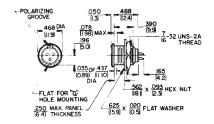


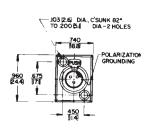
TA\*M TA\*F

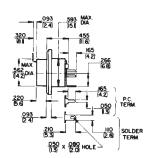




TB\*M TY\*F







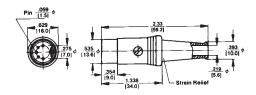
5555 North Elston Avenue / Chicago, IL 60630 Phone: 773-792-2700 / Fax: 773-792-2129

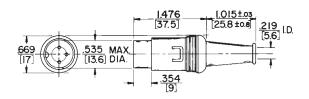
(R)

# Connector Dimension Drawings MIDI, Q-G® Audio - P Series

**05BL5M** 

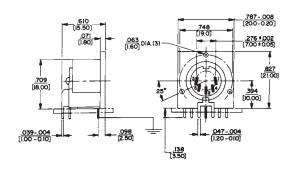
**05GM5M** 



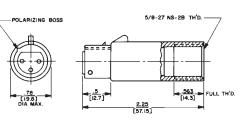


**57GB5F** 

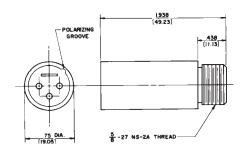
57PC5F



P\*F



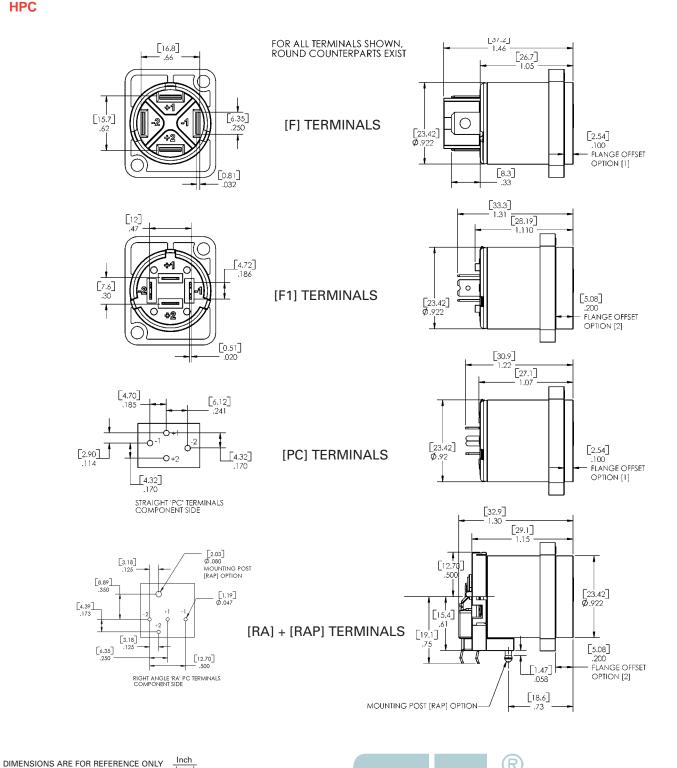
P\*M



SWIG

### **Connector Dimension Drawings** 61 **HPC Panel Style Series**

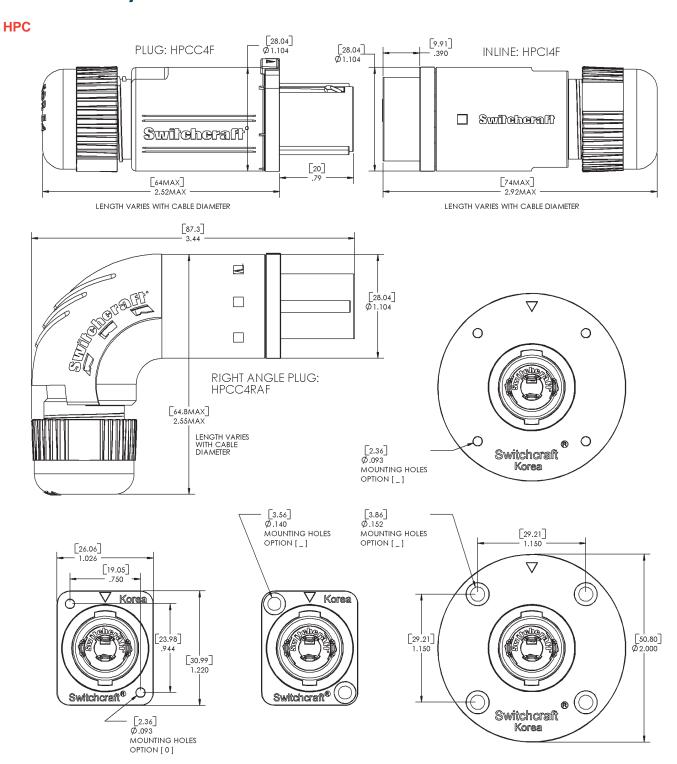
#### **HPC**





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## Connector Dimension Drawings HPC Panel Style Series



# **AUDIO ADAPTERS**

### XLR to XLR, RCA, 1/4," TQ-G Adapter Series 63

A wide variety of audio adapters are available from Switchcraft. Ranges include XLR to XLR, XLR to RCA, XLR to 1/4", along with a multitude of specialty adapters. Our DMX adapters allow users to adapt from 5 pin DMX controls to the more prevalent 3 pin XLR.

#### Ordering Information

Ordering Information			
Part Number	Description		
XLR to XLR			
389	3 Pin female to 3 pin female		
390	3 Pin male to 3 pin male		
S3FM	3 Pin male to 3 pin female		
S3F5M	3 Pin female to 5 pin male		
S5F3M	5 Pin female to 3 pin male		
XLR to RCA			
321	3 Pin female XLR to male RCA		
322	3 Pin female XLR to female RCA		
323	3 Pin male XLR to male RCA		
324	3 Pin male XLR to female RCA		
XLR to 1/4"			
383A	3 Pin female XLR to female 1/4", 3 cond.		
384A	3 Pin male XLR to female 1/4", 3 cond.		
386A	3 Pin female XLR to male 1/4", 3 cond.		
387A	3 Pin male XLR to male 1/4", 3 cond.		
XLR to TQ-G			
TA01	3 Pin XLR female to 3 pin TQG female		
TA02	4 Pin XLR female to 4 pin TQG female		
TA04	3 Pin XLR male to 3 pin TQG female		
TA05	4 Pin XLR male to 4 pin TQG female		



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# **AUDIO ADAPTERS**

### 1/4" to 1/4", RCA; RCA to RCA; & Miscellaneous Adapter Series

44

**Ordering Information** 



Part Number	Description
1/4" to 1/4"	
361A	Mono female to female
362A	Stereo female to female
363	Mono male to male
340	2 Mono jacks parallel to mono plug
352A	Stereo jack to mono plug
1/4" to RCA	
330P	2 RCA jacks to mono plug, 4" cable
336A	Female 1/4" to male RCA
345A	Female RCA to male 1/4"
RCA to RCA	
330F1	2 Female RCA parallel to 1 male RCA
330F2	1 Male and 1 female parallel to 1 male
349A	Female to female
Miscellaneous	
332A	Old MC1M type to 1/4" female
365	Tini-Jax (.141") to RCA male
370A	Female RCA to Tini-Plug (.141")
374	1/4" female to Tini-Plug (.141")
376	Tini-Jax (.141") to Micro-Plug (.097")
377	Micro-Jax (.097") to Tini-Plug (.141")

Female 2500 Series to 1/4" plug



### Jack Series 65

### Littel Phone, Hi-D, Right Angle PC Mount 1/4", 1/4" Extension Jack Series

Switchcraft offers an extensive variety of 1/4" commercial jacks. Littel phone jacks offer open frame designs. Hi-D jacks offer an enclosed, 94V-0 rated thermoplastic housing, our RA jacks are designed for right angle PC board layouts, and our Extension jacks allow the end user to extend cable lengths. All offer a wide range of options to fit a multitude of needs. For mating plugs. look to page 83 for all of the various options.

#### **Specifications**

#### **Mechanical**

Life: 10,000 insertion/withdrawal cycles, minimum

#### **Electrical**

Contact Resistance: .030 ohms maximum (initial), .050 ohms maximum (after humidity, durability exposure) Per Mil-Std-202E Insulation Resistance: 10,000 MW minimum (initial), 1,000 MW minimum (after humidity)

Dielectric Withstanding Voltage: 500V, 60 Hz (rms) AC

Contact Rating: 1A, 25 VDC

#### **Environmental**

Thermal Range: -55°C to +85°C (non-operating); -20°C to +65°C (operating)

Thermal Shock: Per Mil-Std-202,

method 107

Humidity: Per Mil-Std-202, method 106 Salt Spray: Per Mil-Std 202, method 101

#### **Materials**

Mounting Bushing: Copper alloy,

nickel-plated

(RN & RA Series: Thermoplastic)

Insulation: Rigid plastic Springs: Special copper alloy.

Integral contacts are standard in the iso-

lated switching circuits

Sleeve Terminal: Copper alloy

Hardware: Supplied with one Number P10001 copper alloy nickel-plated hex nut, and one Number S1022 steel nickel-plated washer







See next page for ordering information



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### 66 Jack Series

**Ordering Information** 

Part No.	Conductors	Typical Description	Mating Plug	Notes
Littel Phone	Jacks	-		
11	2	single open	280	
12A	2	single closed	280	
12B	3	double open	297	
14B	3	double closed	297	
Hi-D Jacks				
111	2	single open	280	
112B	3	double open	297	
113BPC1M	3	tip closed, ring open (common to sleeve)	297 or 482NC	PC terms, accepts Littel and Mil-type plugs
114B	3	double closed	297	
114BPC	3	double closed	297	PC terms
114BPCS	3	double closed	297	Springlock PC terms
114BPC1M	3	double closed	297 or 482NC	PC terms, accepts Littel and Mil-type plugs, metric thread
Z15J	2	single open	187B	15A rated
Right Angle	PC Mount 1/4"	Jacks		
RA49B11	2	single open	280	
RN112APC	2	single closed	280	
RA49C14B	3	double closed	297	
1/4" Extensi	on Jacks			
80	2	single open	280	Screw terms, black handle
88	2	single open	280	Solder terms, black handle
120	2	single open	280	Screw terms, shielded handle
121	2	single open	280	Solder terms, shielded handle
131	3	double open	297	Solder terms, shielded handle
133	3	double open	298	Solder terms, shielded handle locking
830	3	double open	297	Screw terms, black handle
128	2	single open	280	Solder terms, shielded handle
1238	3	double open	297	Solder terms, shielded handle

See Pages 72-74 for Mechanical Drawings



### Jack Series 67

### Thick Panel/Guitar, Locking 1/4", Tini, Tini-Extension, Micro, 3.5mm

The TP or Thick Panel jacks are typically used in applications such as loudspeaker enclosures and solid-body guitars. Only premium materials are used in the manufacture of these jacks. Locking 1/4" jacks allow the end user to lock the mating plug, providing positive detent to the connection. Also offered is a wide range of 1/8" jacks and true 3.5mm jacks.

#### **Specifications - Thick Panel Series** & Locking Jacks

#### **Electrical**

Insulation Resistance: 2 x 106 MW at 500 VDC per Mil-Std-202, method 302 (initial) Dielectric Withstanding Voltage:

1,000 VAC (ms)

Life: 10,000 cycles minimum

#### **Environmental**

Thermal Range: -55°C to +85°C (non operating); -20°C to +65°C (operating)

Thermal Shock: Per Mil-Std-202, method 107

Humidity: Per Mil-Std-202, method 106

Salt Spray: Per Mil-Std-202, method 101

#### **Materials**

Shell - Locking Jacks: Die-cast zinc, with satin nickel-plating; Black chrome over nickel-plating on special order

Insert and Latch: Thermoplastic, UL94V-0

Latch Release: Nickel-plated

die-cast zinc

Contact Springs: Tin-plated

copper alloy

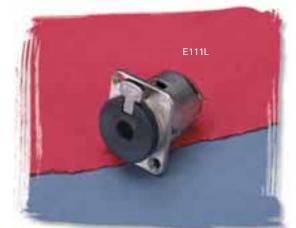
Mounting Bushing - Thick Panel Jacks: Nickel-plated copper alloy

with knurled flange

Insulating Spacer: Rigid plastic

(continued on next page)









### **68** Jack Series

(continued from previous page)

Insulator/Spring Mount:
Thermo-plastic
Springs: Copper alloy
Terminals: Tip: Copper alloy; Ring:

(Number 152B only) Copper alloy; Sleeve: Steel, tin-plated Hardware - Thick Panel Jacks: Supplied with one, Number P10531 nickel-plated copper alloy hex nut; and one, Number P1476 nickel-plated copper alloy flat washer

alloy flat washer

#### **Specifications - 35RAPC Series**

#### **Electrical**

Contact Resistance: 20 milliohms maximum

Insulation Resistance: 100 milliohms minimum at 250 VDC Dielectric Withstanding Voltage:

250 VAC

Life: 5,000 cycles, minimum Insertion Force: 0.88 pounds -

3.5 pounds

Withdrawal Force: 0.88 pounds - 2.64 pounds

#### **Materials**

Coil Spring: Steel Wire

Bushing: Nickel-plated copper alloy Terminal: Silver-plated copper alloy Tip Spring: Silver-plated copper alloy Shunt Terminal: Plated copper alloy Cover: Thermoplastic, transparent UL 94V-2

Body: Thermoplastic, UL 94V-1

black color

## Specifications - 35PM Series & Tini Jack Series

#### **Electrical**

Contact Resistance: .075 ohms

maximum

Insulation Resistance: 5,000 MW

minimum

Dielectric Withstanding Voltage: 250 VAC maximum

Life: 5,000 insertion/withdrawal cycles, minimum

Contact Rating: .25A, 48 VDC

#### **Materials**

Mounting Bushing: Nickel-plated

copper alloy

Insulating Spacers: Rigid plastic

Springs: Copper alloy Sleeve Terminal: Tin-plated

copper alloy

Hardware: Supplied with one,

Number P11501 nickel-plated brass locknut; and one, Number S17901 nickel-plated steel

flat washer

#### **Ordering Information**

		<u> </u>	Typical	
Part No.	Conductor	s Description	<b>Mating Plug</b>	Notes
Thick Pane	el/Guitar Jac	ks (1/4")		
151	2	single open	280	Nickel finish
152	3	double open	297	Brass finish
152B	3	double open	297	Nickel finish
153	2	single open	280	Gold-plated springs, electro-polish brass finish, 9/16-12 UNC wood thread
154	3	double open	297	Gold-plated, no cable clamp
155	3	double open	297	Black satin chrome finish, no cable clamp
Locking 1/	4" Jacks			
E111L	2	single open	280	
E112BL	3	double open	297	
Tini-Jacks	(.141")			
41	2	single open	750	
42A	2	single closed	750	
142A	2	single closed	750	
PC142A	2	single closed	750	PC terms
Tini-Extens	sion Jacks (.′	141")		
125	2	single open	750	
3.5mm Jac	cks			
35RAPC2AV 2		single closed		Threaded bushing, PC terms
35RAPC2BH3 3		double open	35HDNN	Threaded bushing, PC terms
35RAPC3BH	l3 3 ti	ip closed, ring oper	n 35HDNN	Threaded bushing, PC terms
35RAPC4BH	13 3	double closed	35HDNN	Threaded bushing, PC terms
35RAPC7J	3	top jack dual open	35HDNN	Dual vertical jack bottom jack dual closed
35RAPC7JS	3	top jack dual open	35HDNN	Dual vertical jack, shielded bottom jack dual closed
35PM1	2	single open	750	
35PM2A	2	single closed	750	

#### See Pages 75-79 for Mechanical Drawings



### Jack Series

### Phono, Phono Extension, TT or Bantam, MT 1/4" Jack Series

Phono jacks, more commonly called RCA jacks offer low cost, two conductor connections. TT or bantam jacks are the same type used in our audio patchbays. Typically used in high end studio applications. MT or 1/4" jacks are just a bigger version of the TT jacks. Same high quality, just in a larger package.

#### **Specifications - Phono Jacks**

#### **Materials**

Frame and Shell: Steel, plated

Center Terminal: Plated copper alloy (3517PC); Plated

copper alloy (3514PC)

Insulator: Thermoplastic (3514PC) Ceramic and glass

filled thermoplastic (3517PC)

#### For 3515PC Only:

Contact and Saddle: Spring type copper alloy, copper

alloy pre-tinned

Shell: Steel or copper alloy, plated

Insulator Bushing: Ceramic

Insulator Spacer: Glass-filled thermoplastic



#### **Mechanical**

Life: Commercial – 30,000 insertion/withdrawal cycles, minimum; Military – 30,000 insertion/withdrawal cycles, minimum

Mechanical Shock: Military – Per Mil-Std-202, method 213, Test Condition H (75g)

Vibration: Military – Per Mil-Std-202, method 213,

(10-55 Hz)

#### Electrical

Contact Resistance: Commercial – .030 ohms maximum (initial), .050 ohms maximum (after humidity, durability, exposure); Military – .010 ohms maximum (initial), .020 ohms maximum (after life), .10 ohms maximum (after salt spray)

Insulation Resistance: Commercial – 10,000 M $\Omega$  minimum (initial), 1,000 M $\Omega$  minimum (after humidity); Military – 10,000 M $\Omega$  minimum (initial), 1,000 M $\Omega$  minimum (after humidity, durability exposure)

Dielectric Withstanding Voltage: 500V, 60 Hz (rms) AC

(continued on next page)









### 70 Jack Series

(continued from previous page)

#### **Environmental**

Thermal Range: Commercial — 55°C to +85°C (non-operating), -20°C to +65°C (operating); Military – -55°C to +85°C (non operating), -40°C to +65°C (operating)

Thermal Shocks: Commercial

Thermal Shocks: Commercial – Per Mil-Std-202, method 107; Military – Per Mil-Std-202,

method 107

Humidity: Commercial -

Per Mil-Std-202, method 106; Military — 0% to 95% operating and non-operating Salt Spray: Commercial – Per Mil-Std-202, method 101; Military – Per Mil-Std-202, method 101 (48 hours) Moisture Resistance: Military – Per Mil-Std-202, method 106

(240 hours)

#### **Materials**

Frame: Steel, nickel plated Springs: Copper alloy Contacts: Welded, crossbar, gold plated

#### **Ordering Information**

		Typical			
Part No.	Conductors	Description	<b>Mating Plug</b>	Notes	
Phono Jacks					
3501FP	2	single open	3502A	Front mounting	
3501FR 2		single open	3502A	Rear mounting	
3514PC 2		single open	3502A	Right angle, PC mount	
3517PC 2		single open	3502A	Right angle, PC mount	
BPJR** 2		single open	3502A	Rear mounting, colored insulators	
BPJR**AU	BPJR**AU 2		3502A	Same as above, with gold-plating	
BPJF**	IF** 2		3502A	Front mounting, colored insulators	
BPJF**AU	JF**AU 2		3502A	Same as above, with gold-plating	
BPJJ** 2		single open	3502A	Feed through mount	
BPJJ**AU	2	single open	3502A	Same as above, with gold-plating	
Phone Extension J	lacks				
3503	503 2		3502A		
TT or Bantam Jack	(S				
T34B 3		double closed	TT253NC		
TT34BNY 3		double closed	TT253NC	Nickel-plated frame, fanned terminals	
WTT34B	3	double closed	TT253NC	Wire-wrap terminals	
MT 1/4" Jacks					
MT334B	3	double closed 482NC			
WMT334B	3	double closed 482NC		Wire-wrap terminals	
YMT334BN	3	double closed	osed 482NC Nickel-plated frame, fanned tern		

<sup>\*\*</sup> To designate color of insulator, use: 01- Black, 02 - Red, 03 - White, 04 - Yellow, 05 - Blue, 06 - Green

#### See Pages 80-82 for Mechanical Drawings



### Power/Jacks Plugs Series **1** 700, \$700, 800 Cord & Panel Style Series

Low power AC to DC power jacks and plugs are used throughout the audio industry, to power a wide variety of products. Switchcraft offers both cord plug and panel mount versions, including locking and non-locking versions.

#### **Specifications - Plugs**

#### **Electrical:**

Current (Carry): 5 amps

#### **Materials**

Plug Sleeve and Pin: Nickel-plated copper alloy

Lock Ring: Nickel-plated copper

Lock Ring Thread Size: 5/16" -

32 UNEF 2B

Finger Insulator: Molded plastic Insulating Washers: Rigid plastic Sleeve Terminal: Copper alloy,

electro-tinned Handle: Molded plastic Handle Thread Size: 5/16" -

24 UNF 2B

#### **Specifications - Jacks**

#### **Mechanical**

Life: 10,000 insertion/withdrawal cycles minimum Insertion/Withdrawal Forces: 3 pound insertion (maximum), 4 ounce minimum withdrawal

#### **Electrical**

Contact Resistance: .01 ohms maximum (initial), .02 ohms maximum (after humidity, durability exposure), .1 ohms maximum (after salt spray) Insulation Resistance: 10,000 MW minimum (initial), 1,000 MW minimum (after humidity, durability exposure) Dielectric Withstanding Voltage: 500 VAC maximum Contact Rating: 5A, 12 VDC resistive



#### **Materials**

Housing: Molded plastic Mounting Bushing and Hex Nut:

Plated copper alloy

Pin, Spring and Terminals: Plated

copper alloy

Insulators: Rigid plastic Hardware: Supplied with one Number P2439 nickel-plated brass hex nut, and one Number P2441 nickel-plated steel flat washer

Ordering Information

Ordering information					
Style	Notes				
Panel	0.100" center pin				
Panel	0.080" center pin				
Panel	0.050" center pin				
Cord	0.100" center hole, black handle				
Cord	0.100" center hole, red handle				
Cord	0.080" center hole, black handle				
Cord	0.080" center hole, red handle				
Cord	0.050" center hole, black handle				
Cord	0.050" center hole, red handle				
Cord	0.100" center hole, black handle, locking				
Cord	0.080" center hole, black handle, locking				
	Style Panel Panel Panel Cord Cord Cord Cord Cord Cord Cord Cord				

See Next Page for Mechanical Drawings



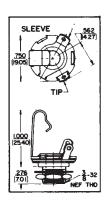


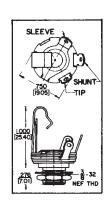


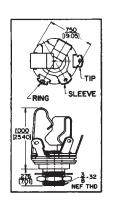
### **72** Jack Series Dimension Drawings

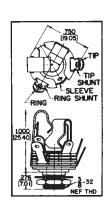
Littel Phone, Hi-D, 1/4" Extension, 700 Panel Jack Series

11, 12A, 12B, 14B









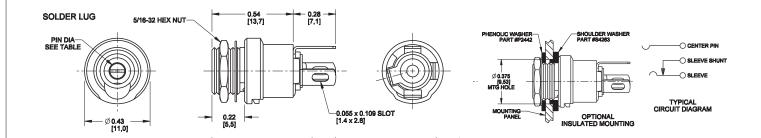
11 Series

12A Series

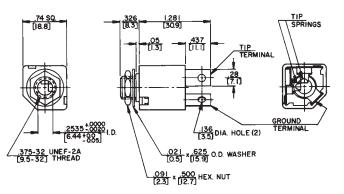
12B Series

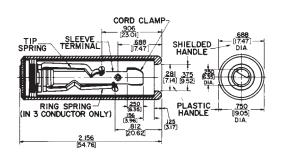
14B Series

### 712A



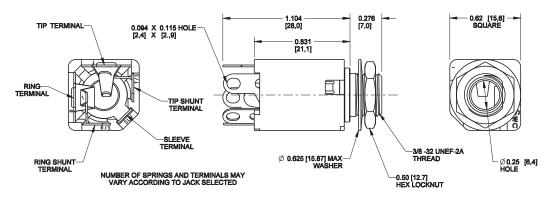




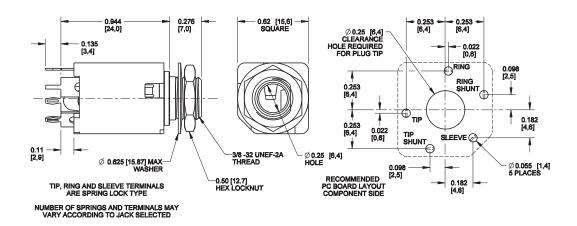


### Jack Series Dimension Drawings 73 Littel Phone, Hi-D, 1/4" Extension Jack Series

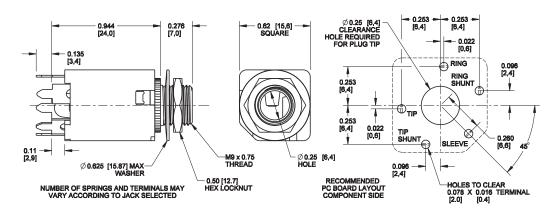
### Solder Lug Terminals for Hi-D Jax - 111, 112B, 114B



### Spring Lock PC Terminals for Hi-D Jax - 114BPCS



### PC Terminals for Hi-D Jax - 113BPC1M, 114BPC1M

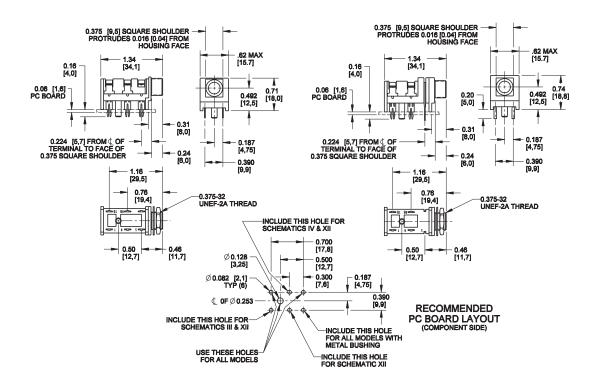


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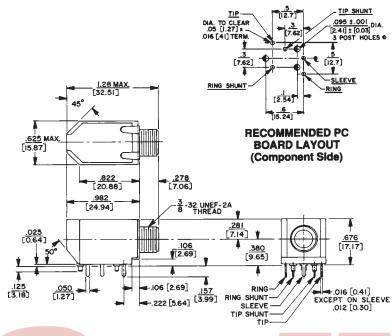


## Jack Series Dimension Drawings Right Angle PC Mount 1/4" Jack Series

RA49B11 RA49C14B



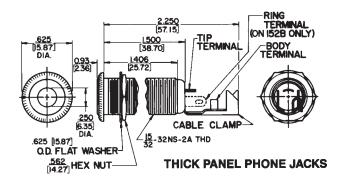
RN112APC



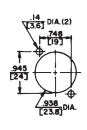
### **Jack Series Dimension Drawings** 75

Thick Panel/Guitar, Locking 1/4", Tini, Tini Extension Jack Series

151, 153

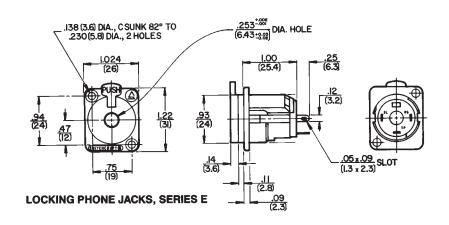


### E111L, E112BL

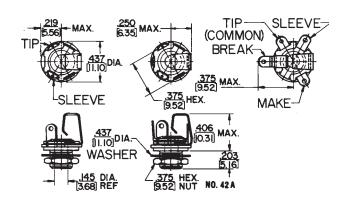


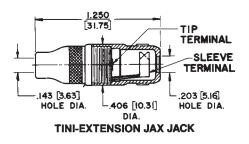
RECOMMENDED **PANEL CUTOUT** 

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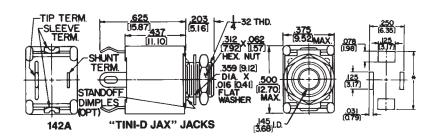
#### 41, 42A 125

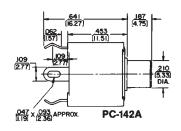




## Jack Series Dimension Drawings Micro, 3.5mm Jack Series

142, PC142A





\* (406) FOR (0.57) THK. BOARD

\* (10.31) FOR (1.57) THK. BOARD

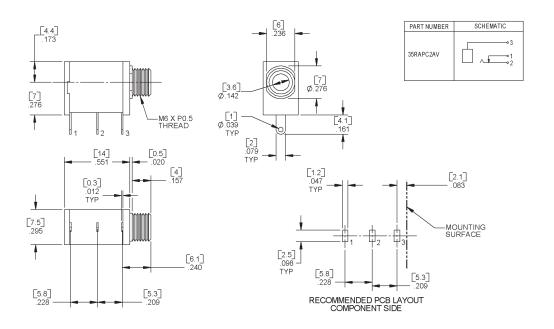
\* (10.72) FOR (1.56) THK. BOARD

\* (1.10) FOR (236) THK. BOARD

RECOMMENDED

**PC BOARD LAYOUTS** 

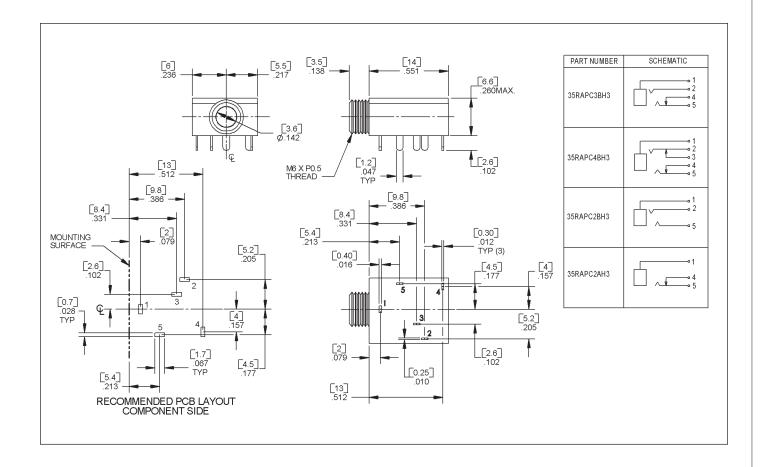
35RAPC2AV



## **Jack Series Dimension Drawings** 77

3.5mm Jack Series

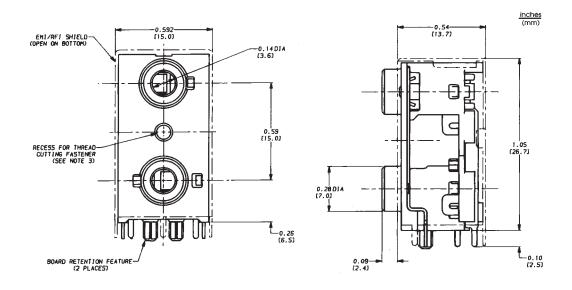
### 35RAPC2BH3, 35RAPC3BH3, 35RAPC4BH3

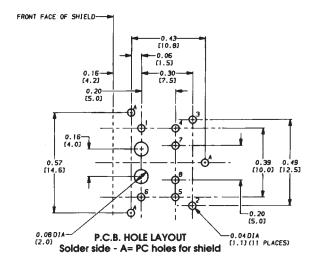


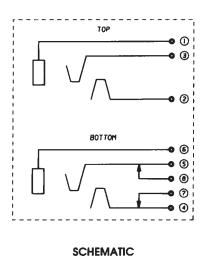
5555 North Elston Avenue / Chicago, IL 60630 Phone: 773-792-2700 / Fax: 773-792-2129

## Jack Series Dimension Drawings 3.5mm Jack Series

**35RAPC7J, 35RAPC7JS** 



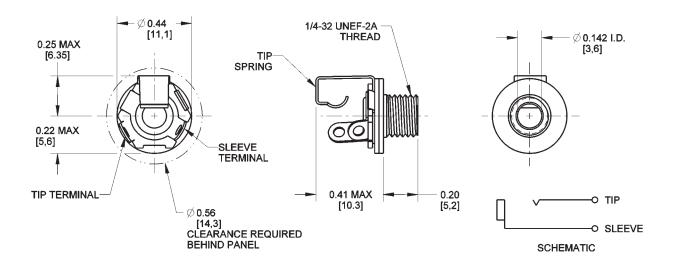




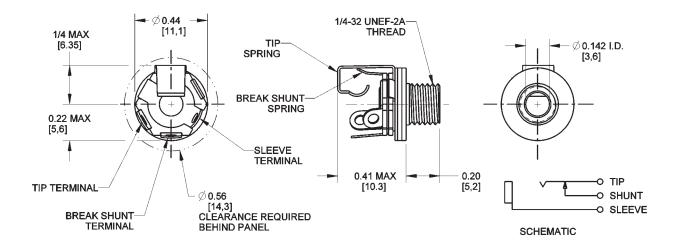
### **Jack Series Dimension Drawings** 79

3.5mm Jack Series

#### 35PM1

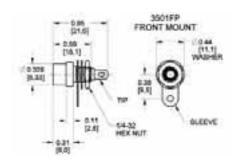


### **35PM2A**

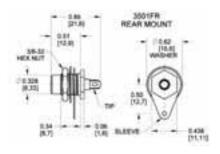


## Jack Series Dimension Drawings Phono and Phono Extension Jack Series

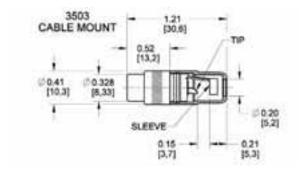
### 3501FP



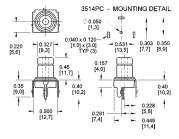
### 3501FR



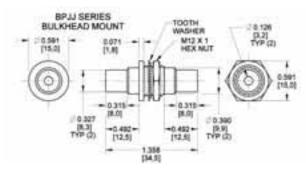
### 3503 Extension



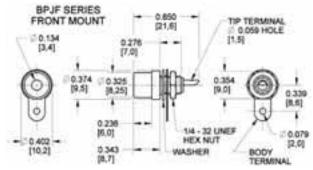
### 3514PC, 3517PC



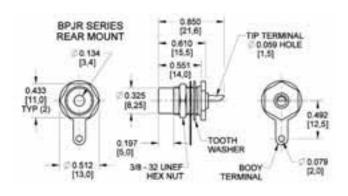
### **BPJJ Series**

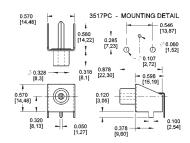


### **BPJF Series**



### **BPJR Series**

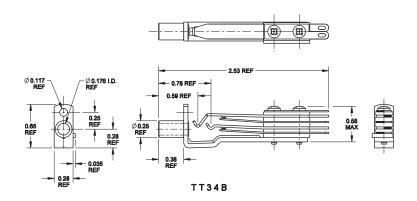


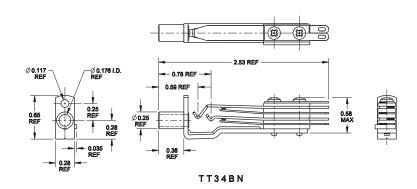


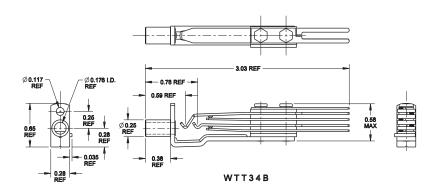
## Jack Series Dimension Drawings 81

**TT or Bantam Jack Series** 

### **TT34B, TT34BN, WTT34B**

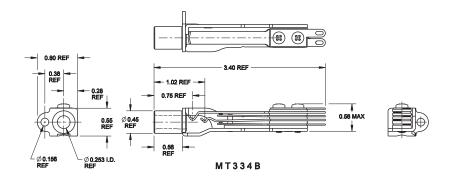


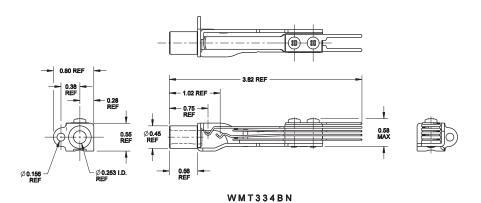


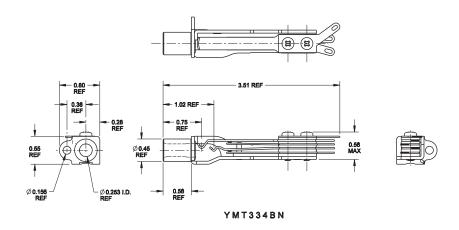


## **Jack Series Dimension Drawings**MT 1/4" Jack Series

MT334B, WMT334B, YMT334BN







### Plug Series **83**

### Littel 1/4", Right Angle 1/4", Silent, Super Heavy Duty Plug Series

Switchcraft Littel Plugs all feature one-piece tip rods for added strength and durability. All are offered in a wide variety of configurations, including straight, right angle, shielded, screw or solder terminals. The Heavy Duty Speaker plugs have larger cable clamps and are rated at 15A. The Silent plugs have a unique circuit-closing device which stops hums, pops, and squeals when the plug is removed or inserted from the jack. Miti plugs feature heavy duty brass construction, rugged cable clamps, and spring flex reliefs. All plugs meet EIA standards for tip configuration, which ensures you they mate properly with the jack.



### **Specifications**

#### **Electrical**

Contact Resistance (typical Depends on Mating Jack): < 0.020 ohms

Dielectric Withstand Voltage: 500 VAC (minimum)

Insulation Resistance @ 500 VDC: 2,000 megohms (minimum) Insulation Resistance (after Mil-Std-202 Salt Spray): 1,000

megohms (minimum) Working Voltage: 250 VAC, 140

VDC

Insert/Withdrawal Force: Depends on Mating Jack Soldering Requirement: ANSI/J-Std-001

Temperature Range: -40°C to +85°C

U.L. Component Recognition File

No: E118169

Life: Depends on Mating Jack

#### **Materials**

Tip: Nickel-plated copper alloy Sleeve: Nickel-plated copper alloy Handle: Nickel-plated copper alloy Tip Terminal: Copper alloy, electrotin-plated Cable Clamp: Copper alloy, electro-tinplated

See Next Page for Ordering Information

DIMENSIONS ARE FOR REFERENCE ONLY

w



c h С r

a f t

w





## **84 Plug Series**

**Ordering Information** 

Part No.	Typical Conductors	Terminals	Mating Jack	Handle	Notes
1/4"" Litte	l Plug Series				
240	2	Screw	11	Black	
245	2	Screw	11	Red	
250	2	Solder	11	Black	
260	2	Screw	11	Black	
270	2	Screw	11	Black	
280	2	Solder	11	Shielded	
281	2	Solder	11	Shielded	Unassembled
580	2	Solder	11	Shielded	Diecast handle
285	2	Solder	11	Shielded	Unassembled
285L	2	Solder	11	Shielded	Larger cable clamp
267	3	Solder	12B	Black	
290	3	Screw	12B	Shielded	
297	3	Solder	12B	Shielded	
299	3	Solder	12B	Shielded	Diecast handle
Heavy Du	ty Speaker Plugs	<b>5</b>			
184	2	Solder	11 or Z15J	Shielded	Accepts Cable OD up to .375"
188	2	Solder	11 or Z15J	Shielded	Accepts Cable OD up to .450"
187	2	Solder	11 or Z15J	Shielded	Accepts Cable OD up to .330"
187B	2	Solder	11 or Z15J	Shielded	Black Handle, accepts Cable OD u
to .330"	le 1/4" Plugs				
226	2	Solder	11	Shielded	
228	2	Solder	11	Shielded	Flat handle
236	3	Solder	12B	Shielded	That Harrano
238	3	Solder	12B		Flat handle
Silent Plu		001001	125		That Harrano
172	2	Screw	11	Shielded	
181	2	Solder	11	Shielded	
Miti Plugs					
174S	2	Solder	11 or Z15J	Shielded	Brass finish, spring flex relief
	<del>-</del>			,	, , ,

See Pages 88-89 for Mechanical Drawings



Plug Series 85

Tini, Micro, 3.5mm Stereo, Right Angle 3.5mm Stereo, Phono, **Right Angle Phono Plugs Series** 

Switchcraft offers a wide variety of Tini, Micro, 3.5mm, and RCA or Phono plugs. Tini plugs are 2 conductor plugs with plug finger diameters of .141" or 3.57mm. Micro plugs are 2 conductor plugs with plug finger diameters of .097" or 2.47mm. Our 35HD Series are true 3.5mm plugs, available in both straight and right angle versions; and available only in 3 conductor. The RCA or Phono plugs come with either hollow pins or solid pins. The 3502 offers hollow pins and standard size handle, the 3502L offers the same pin, but with a larger handle, accommodating cables up to .290". The 3502A and 3502RA Series offer solid pins and the larger cable clamps and handles. The 3558 Series offers a low cost alternative, with hollow pins and plastic handles.



### **Specifications**

#### **Mechanical**

Life rating: 5,000 insertion/ withdrawals Insertion/Withdrawal Force: 1 lb (depending on mating jack)

### **Electrical**

Insulation Resistance: > 100 megohms Dielectric Withstanding Voltage: 250 VAC

### **Environmental**

Thermal Range: -55°C to +85°C (non operating); -20°C to 65°C (operating)

Thermal Shock: Mil-Std 202,

method 107

Humidity: Mil-Std 202,

method 106

Salt Spray: Mil-Std 202,

method 101

(continued on next page)





### **86 Plug Series**

#### **Materials**

Tip, Rod and Body (also integral coupling collar on lock micro-plug): Nickel-plated copper alloy Insulation: Molded thermoplastic Sleeve Termination and Cable Clamp: Tinned copper alloy Handle: Nickel-plated copper alloy, or anodized aluminum, or thermoplastic. See factory for details.

### **Ordering Information**

Part No.	Conductors	Terminals	Typical Mating Jack	Handle	Notes
Tini-Plug (.141	")				
740	2	Screw	41	Black	
750	2	Solder	41	Black	
755	2	Solder	41	Red	
780	2	Solder	41	Shielded	
Micro-Plugs (.6	097")				
850	2	Solder	TR2A	Black	
855	2	Solder	TR2A	Red	
851	2	Solder	TR2A	Black	Locking version
880	2	Solder	TR2A	Shielded	
881	2	Solder	TR2A	Shielded	Locking version
3.5mm Stereo	Plugs				
35HDNN	3	Solder		Shielded	
35HDBAU	3	Solder		Black Shielded	Gold-plated finger
35HDNAU	3	Solder		Shielded	Gold-plated finger
3.5mm Right	Angle Stereo Plugs	<b>3</b>			
35HDRANN	3	Solder		Shielded	
35HDRABAU	3	Solder		Black Shielded	Gold-plated finger
35HDRAAU	3	Solder		Shielded	Gold-plated finger
Phono Plugs					
3502	2	Solder	3501FP	Shielded	Hollow Pin
3502A	2	Solder	3501FP	Shielded	Large cable clamp, solid pin
3502AAU	2	Solder	3501FP	Shielded	Gold-plated finger
3502ABAU	2	Solder	3501FP	Black shielded	Gold-plated finger
3502L	2	Solder	3501FP	Shielded	Hollow pin, large cable clamp
35581	2	Solder	3501FP	Red	Plastic handle
35582	3	Solder	3501FP	Black	Plastic handle
35585	3	Solder	3501FP	White	Plastic handle
Right Angle P	hono Plugs				
3502RA	2	Solder	3501FP	Shielded	
3502RABAU	2	Solder	3501FP	Black Shielded	Gold-plated finger
3502RAAU	2	Solder	3501FP	Shielded	Gold-plated finger

See Pages 90-92 for Mechanical Drawings



Switchcraft leads the industry when developing innovative TT and MT Style plugs. Our "N" version plugs offer nickel-plated plug fingers to reduce tarnishing and corrosion. Our "NC" version plugs not only offer nickel-plated plug fingers, but also large, easy to use solder cups and terminals, plus easy to use cable clamps that really secure your cable to the plugs.

### **Specifications**

### **Materials**

Copper alloy, natural finish
Terminals (NC Version): Tinned
copper alloy
Insulation: Thermoplastic, per
Mil-P-22985, Type II, Class 1
Handles: Thermoplastic, Type 6,
per Mil-M-20693, Type II
Shielded (NC Version): Machined
from copper alloy, nickel-plated

Tip Rod, Body and Screws:



### See Page 93 for Mechanical Drawings

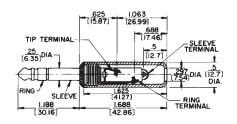
### **Ordering Information**

Part No.	Conductors	Terminals	Handle	Notes			
TT or Bantam Plugs							
TT253	3	Screw	Black				
TT253N	3	Screw	Black	Nickel-plated finger			
TT253NC	3	Solder	Black	Nickel-plated finger			
TT254	3	Screw	Red				
TT254N	3	Screw	Red	Nickel-plated finger			
TT254NC	3	Solder	Red	Nickel-plated finger			
Mil-Style 1/	4 Plugs						
480	3	Screw	Black	0.206" OD			
482	3	Screw	Red				
482N	3	Screw	Red	Nickel-plated finger			
482NC	3	Solder	Red Shielded	Nickel-plated finger			
482NCP	3	Solder	Red	Nickel-plated finger			
483	3	Screw	Black				
483N	3	Screw	Black	Nickel-plated finger			
483NC	3	Screw	Black Shielded	Nickel-plated finger			
483NCP	3	Solder	Black	Nickel-plated finger			
484	3	Screw	Red	0.206" OD			
485NC	3	Solder	Shielded	Nickel-plated finger			

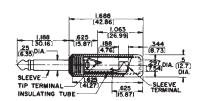
5555 North Elston Avenue / Chicago, IL 60630 Phone: 773-792-2700 / Fax: 773-792-2129

## Plug Series Dimension Drawings Littel Plug 1/4" Series

260 280 Typical

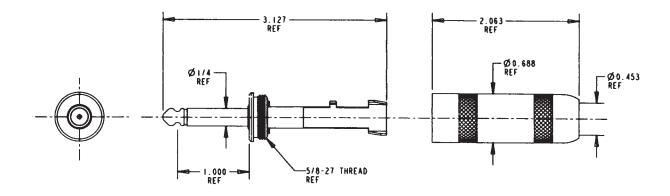


No. 260 typical — shown with screw-type terminals and plastic handle.

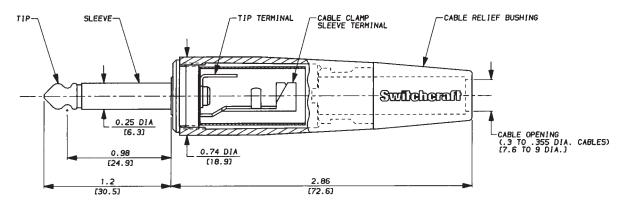


No. 280 typical — shown with solder lug terminals, cord clamp and shielded handle.

188



187BL

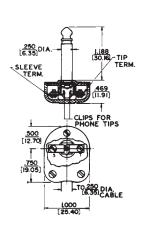


No. 187BL (Typical)

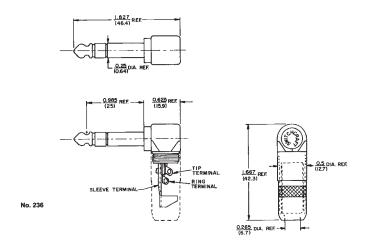
## Plug Series Dimension Drawings 89

### Littel Right Angle 1/4", Silent, Super Heavy Duty Plug Series

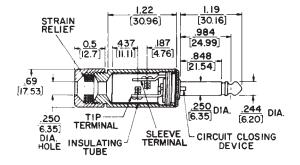
### 228 Right Angle 1/4" Plugs



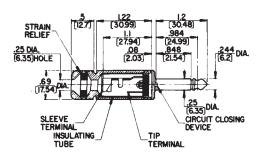
### 236 Right Angle 1/4" Plugs



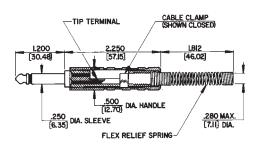
### 172



### **181 Silent Plug**



### 174S Super Heavy Duty Plug



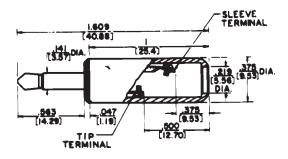
DIMENSIONS ARE FOR REFERENCE ONLY





## Plug Series Drawings Tini, Micro Plug Series

740, 750 Tini-Plugs



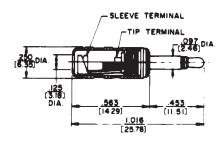
(1.19) (3.55) (5

[25.4]

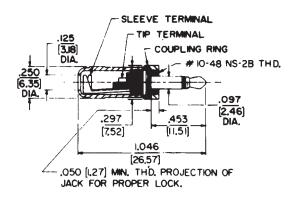
740 Screw Terminals Series

750 Clamp-Lug Terminals

### 850, 851 Micro Plugs



850 (typical) Series

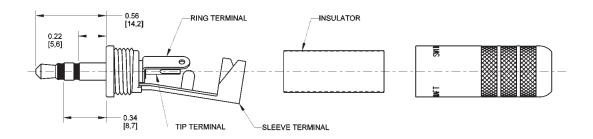


851 (typical) Series

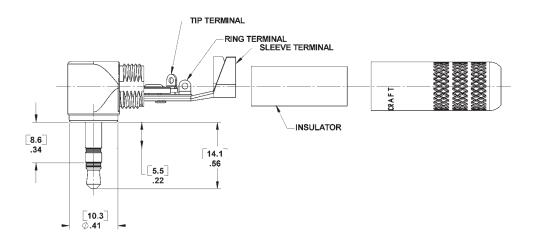


## Plug Series Drawings 35HD 3.5mm Stereo Plug Series

### 35HDNN, 35HDBAU, 35HDNAU



### 35HDRANN, 35HDRABAU, 35HDRAAU

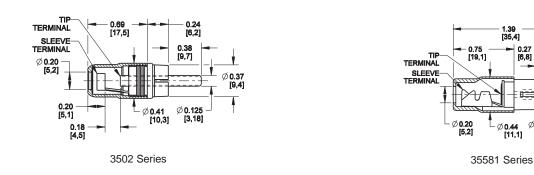


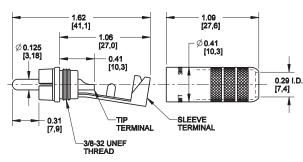


## S & PHIGS

### 92 Plug Series Drawings **Phono and Phone Right Angle Plug Series**

3502, 3502A, 35581 Phono Plug





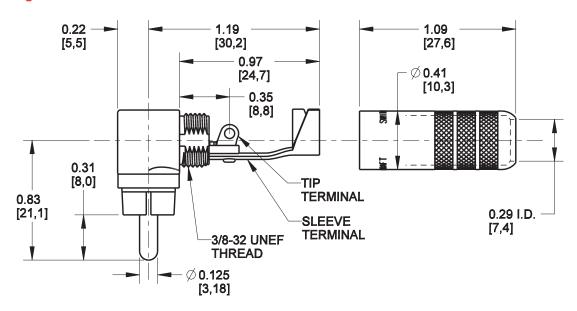
0.27 [6,8]

0.38 [9,6]

Ø 0.125 [3,18]

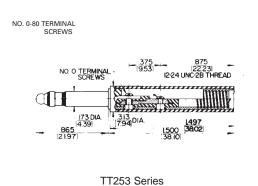
3502A Series

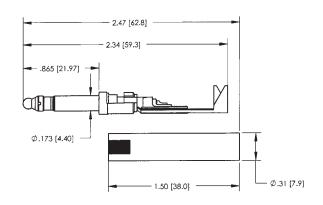
### 3502RA Plug



## Plug Series Drawings TT or Bantam, Mil-Style 1/4" Plug Series

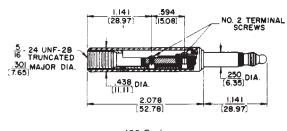
### TT253, TT253NC Plug



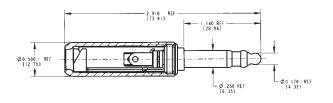


TT253NC Series

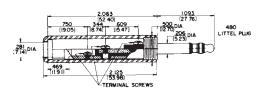
### 480, 482, 482NC, 484 Mil-Style 1/4" Plug



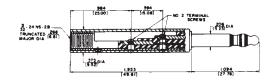
480 Series



482NC Series



482 Series



484 Series

DIMENSIONS ARE FOR REFERENCE ONLY





## SWITCHES

### M Switch Series

### **Guitar and Knobs, and Broadcast Switch Series**

The 12000 Series switches are premium grade switches used primarily in guitars as pick-up switches. The largest names in the industry rely on our switches for quality and durability. Our 84000 Series and PL Series switches are used in broadcast studios, theater lighting, anywhere large illuminated switches are needed.

### **Specifications - 12000 Series**

### **Electrical**

Contact Ratings: Fine silver contacts rated at 3A, 300W maximum AC non-inductive load standard. Other contacts available Leakage Resistance: 1,000 MW

or greater

Dielectric Strength: 250 VDC

### **Materials**

Frame: Copper alloy, plated (3,000, 13,000); Steel, plated (12,000)

Bushing and Shaft: Copper alloy, plated

hiarea

Springs: Copper alloy

Knob: Black molded thermoplastic Mounting Hardware: Knurled copper alloy locknut T10711, supplied. P10531 hex locknut, special order

Insulation: Rigid plastic spacers with plastic tubing through stack. Rigid plastic and/or thermoplastic lifters. Thermoplastic cam on actuator end

### **Specifications - 8400 Series**

### **Electrical**

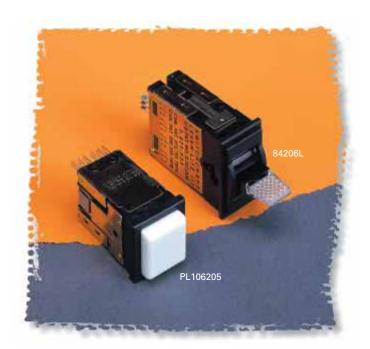
Temperature Range: -22°F to 158°F (-30°C to +70°C) Dielectric Strength: 1 kV DC Leakage Resistance: 1,000 MW or greater

#### **Materials**

Mounting/Retaining Clips and Covers: Steel, plated Contact Ratings: Gold crossbar rated at 1A, 200W Maximum AC non-inductive loads (continued on next page)



Note: Knobs must be ordered separately.





### Switch Series III

(continued from previous page)

Springs: Copper alloy, plated Lamp Terminals: Copper alloy, plated Lamp Socket: Zinc, plated Terminals: Copper alloy, plated, straight solder lugs Housing, Escutcheon, Knob, Actuator and Switching Stacks Insulation: Molded plastic

### **Specifications - PL Series**

PUSH-LITE Switches Series and PL Indicators

### **Contacts**

Welded crossbar Gold Alloy, rated at 2 amps., 200 watts max., AC non-inductive load.

#### **Electrical**

6,000 Minimum Life (Gold Alloy Contacts) per UL 1054.

#### **Materials**

Push-Lite Switch Assemblies:

Housing, Lifters, Switch Modules, Barriers and Pushbuttons: Molded Plastics

Contacts Springs: Phosphor Bronze, Silver Plated Lamp Terminals: Brass, Silver plated

Lamp Socket, Light Divider and Yoke Assembly: Nickel Silver Mounting Bracket and Retaining Clips: Steel with iridescent iridite over Cadmium Plating

### Series PL Pushbuttons:

Housing, Color Filter Inserts and Display Screens: High impact thermoplastic

### PL Indicators:

Housing: Molded glass filled **Plastics** 

Mounting Bracket: Steel, iridescent over cadmium Plating.

Lamp Retainer and Terminals:

Nickel Silver.

Display Screen (Pushbutton): Molded Plastics.

### **Ordering Information**

Part Nun	nber Circuitry	Description
Guitar Sw	vitches	
12010	SPST(NC)/SPST(NC)	Straight, nickel finish, riveted silver contacts
12011	SPST(NC)/SPST(NC)	Straight, bright brass finish, riveted silver contacts
12012	SPDT(non-shorting)/SPST(NC)	Right angle, nickel finish, welded silver contacts
12013	SPST(NC)/SPST(NC)	Right angle, nickel finish, welded silver contacts
12014	SPST(NC)/SPST(NC)	Right angle, black finish, welded silver contacts
12015	DPDT(NC)/DPDT(NC)	Right angle, nickel finish, welded silver contacts
12016	SPST(NC)/SPST(NC)	Right angle, bright brass finish, riveted silver contacts
12017	SPST(NC/SPST(NC)	Right angle, nickel finish, welded gold contacts
Knobs		
T12742		Black
T12745		White
T127410		lvory
P2912		Amber
Broadcast	t Switches	
84206L	DPDT	2 Position, locking
84306L	SPDT(non-shorting) both sides	3 Position, locking
84312L	DPDT both sides	3 Position, locking
84324L	DPDT both sides	3 Position, locking
K131		Filter kit, 3 of ea. (amb, blu, grn, red, wht, and yel)
PL106205	DPDT	Momentary, single lamp
PL206205	DPDT	Momentary, twin lamp
PL106705	DPDT	Push-lock/Push-release, single lamp
PL206705	DPDT	Push-lock/Push-release, twin lamp

### See Next Page for Mechanical Drawings



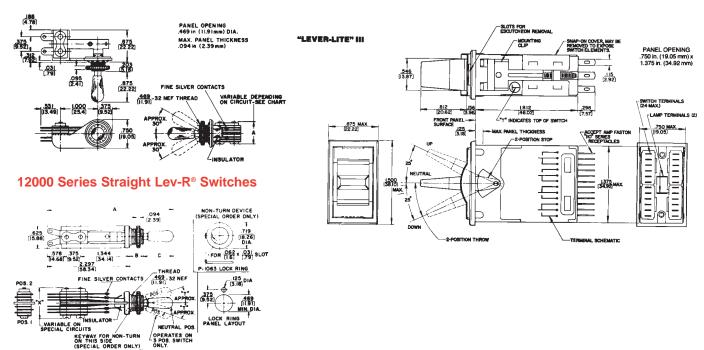
# **SWITCHES**

### Switch Series Drawings

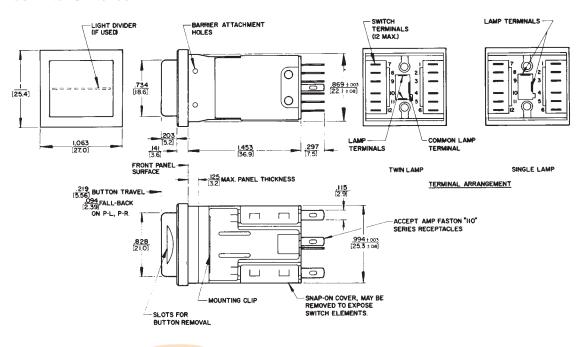
### **Guitar and Knobs, and Broadcast Switch Series**



### 84000 Series Lever-Lite® Switches



### PL Series Push-Lite® Switches



\* Please visit the product pages on our website for the most up-to-date product information





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05AD05	45	172	84	340	64	42A	68
05AK05		174S		345A		44	
05AK25		181		349A		480	
05AN05		184		3501FP		482	
05AN15		187		3501FR		482N	
05AN25		187B		3502		482NC	
05AN80		188		3502A		482NCP	
05AU05		18QD18		3502AAU		483	
05AU80		18QF18		3502ABAU		483N	
05BL5M		18QH18		3502L		483NC	
05DL5M		20QD20N		3502RA		483NCP	
05GM5M		20QF20N		3502RAAU		484	
10BF10		20QH20N		3502RABAU		485NC	
10BK10		226		3503		516-090-000-301	
10BN10		228		3514PC		516-090-000-302	
11		236		3517PC		516-120-000-101	
111		238		352A		516-120-000-102	
112B		240		35581		516-290-500	
113BPC1M		245		35582		516-290-590	
114B		250		35585		57GB5F	
114BPC		2501F		35HDBAU		57PC5F	
114BPC1M		2501F 2501M		35HDNAU		57PC5F	
114BPCS		2501MP		35HDNN		580	
120				35HDRAAU		712A	
		25AF25				712A 722A	
12010		25AK25		35HDRABAU			
12011		25AK82		35HDRANN		732A	
12012		25AN25		35PM1		740	
12013		260		35PM2A		750	
12014		267		35RAPC2AV		755	
12015		270		35RAPC2BH3		760	
12016		280		35RAPC3BH3		760K	
12017		281		35RAPC4BH3		765	
121		285		35RAPC7J		780	
1238		285L		35RAPC7JS		80	
125		290		361A		830	
128		297		362A		84206L	
12A		299		363		84306L	
12B		30AK30		365		84312L	
131		30AN30		370A		84324L	
133	66	30AR30		374	64	850	
142A	68	321	63	376	64	851	86
14B	66	322	63	377	64	855	86
151		323	63	383A	63	860	71
152	68	324	63	384A	63	865	71
152B	68	330F1	64	386A	63	88	66
153		330F2	64	387A		880	
154	68	330P	64	389	63	881	86
155	68	332A	64	390	63	A*F	
15AK15	45	336A	64	41	68	A*FB	46

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A * ED A I I	40	E110DI	00	NAD4E	4.5	N // / DOOK O * 7 F.T.	07
A*FBAU		E112BL		MD15		MVP32K3*75T	
A*FL		E3FSC		MD3		MVP32K3*NT	
A*M		E3FSCB		MD6		P*F	
A*MB		E3FSCBAU		MT334B		P*FB	
A*MBAU		E3MSC		MT48FN		P*M	
A*ML		E3MSCB		MT48HN		P*MB	
AA*F		E3MSCBAU		MT48K1FN		P2912	
AA*FB		EH13942		MT48K1HN		PC142A	
AA*FBAU		EHBNC2		MT48K1NN		PD3FSC1	
AA*FL		EHBNCSC		MT48K1NS		PD3FSC1AU	
AA*M		EHCAT62		MT48K3FN		PD3MSC1	
AA*MB		EHRCA2		MT48K3HN		PD3MSC1AU	
AA*MBAU		EHRCABNC		MT48K3NN	24	PL106205	
AA*ML		EHUSB2	52	MT48NN	26	PL106705	95
AAA*FBAUZ	46	HP75BNC1	54	MT48NS	26	PL206205	95
AAA*FBZ	46	HP75BNC12	54	MT52FN	26	PL206705	95
AAA*FPBAUZ	46	HP75BNC2	54	MT52HN	26	PT1LA	4
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AAA*FPZ	46	HP75BNC9	54	MT52K1HN	24	QGPK116FB	32
AAA*FZ		HPCC4F	51	MT52K1NN		QGPK116MB	32
AAA*MBAUZ	46	HPCC4RAF	51	MT52K1NS	24	QGPK18M8FB	32
AAA*MBZ		HPCI4F		MT52K3FN		QGPK1B	
AAA*MPBAUZ		HPCP410PC		MT52K3HN		QGPK332MFB	
AAA*MPBZ		HPCP410RA		MT52K3NN		QGPK3B	
AAA*MPZ		HPCP41F		MT52NN		R*FBAUZ	
AAA*MZ		HPCP41F1		MT52NS		R*FBZ	
B*F		HPCP420PC		MTP24K7		R*FZ	
B*FB		HPCP420RA		MTP48K1NO		R*MBAUZ	
B*M		HPCP42F		MTP48K1NS		R*MBZ	
B*MB		HPCP42F1		MTP48K3BPNS		R*MZ	
BPJF**		HPCPK112F		MTP48K3NO		RA49B11	
BPJF**AU		HPCPK112F1		MTP48K3NS		RA49C14B	
BPJJ**		HPCPK1B		MTP48K3PBNO		RN112APC	
BPJJ**AU		HPCPK324F		MTP48K3SNO		RS422H48N081	
BPJR**		HPCPK324F1		MTP52K3BPNO		RS422H4N161	12
BPJR**AU		HPCPK3B		MTPFA48K1NO		RS422H4N162	
C*F		HPCPR410PC		MTPFA48K1NS		RS422H4N242	
C*FB		HPCPR41F		MTPH48K1NO		RS422V4N081	
C*M		HPCPR41F1		MTPH48K1NS		RS422V4N161	
C*MB		HPCPR420PC		MTPH48K3NO		RS422V4N162	
D*F		HPCPR42F		MTPH48K3NS		RS422V4N242	
D*FB		HPCPR42F1		MTPH48K3SNO		RS422V4N322	
D*FBAU		J3FS		MVEZNPK175T		S3F5M	
D*FS		K131		MVJ*75T		S3FM	
D*M		K3FS		MVJ*NT		S5F3M	
D*MB		K459		MVP32K1*75T		\$760	
D*MBAU		K460		MVP32K1*NT		S760K	
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## 100

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T12742		TTD8	
T12745		TTD9	45
T3F		TTEZN****0	
TA*F		TTP96ASFN	
TA*FB		TTP96ASHN	
TA*FL		TTP96ASNN	
TA*M		TTP96K1FN	
TA*MB		TTP96K1HN	
TA*ML		TTP96K1NN	
TA01		TTP96K3BPNS	
TA02		TTP96K3FN	
TA04		TTP96K3HN	
TA05		TTP96K3NN	22
TB*M		TTP96K5BPNS	
TB*MB	49	TTPFA96K1NO	
∏1		TTPFA96K1NS	8
TT10	45	TTPH96K1NO	5
TT122	45	TTPH96K1NS	5
TT124	45	TTPH96K3NO	5
TT126	45	TTPH96K3NS	5
TT127		TTPW96K1HN	16
TT128		TTPW96K1NN	
TT2		TTPW96K1NS	
TT253	87	TTPW96K3HN	
TT253N		TTPW96K3NN	
TT253NC		TTPW96K3NS	
TT254		TY*F	
TT254N		VAPK1HD*75T	
TT254NC		VAPK1HD*NT	
TT3		VAPK1SD*75T	
TT34B		VAPK1SD*NT	
TT34BN		VAPK3HD*75T	
TT34BNY		VAPK3HD*NT	
TT4		VAPK3SD*75T	
TT5		VAPK3SD*NT	
TT6		VJHD*75TX	
TT7		VJHD*NTX	
TT8		VJSD*75TX	
TT9		VJSD*NTX	
TT96EDACNO		VMAFN	
TT96EDACNO TT96EDACNS		VIVIAFINVMPP	
1 100227 (0110			
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TTD2		VMVSD*75T	40
TTD3		VMVSD*NT	40
TTD4		VPP24K1HD*75T	
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VPP24K3HD*NT	
VPP24K3SD*75T	34
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VPP26K3SD*NT	34
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WTT34B	
YMT334BN	
715 l	

### **ПОСТАВКА** ЭЛЕКТРОННЫХ КОМПОНЕНТОВ

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001 Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

### Данный компонент на территории Российской Федерации Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

### http://moschip.ru/get-element

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

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