

Application Note

Leviton Patch Panel Grounding

Use the following instructions to properly ground Leviton patch panels. Note, depending on the panel, the grounding instructions will vary, please review the installation instructions that accompany the panels for the specific grounding instructions. **All metalwork within the Telecommunications Room must be bonded/grounded – including the metal faces of unshielded patch panels.**

Application Note ID:
NS-AN-22-006-09-15-22

Date:
Sept. 15, 2022

Product Line:
Copper Patch Panels

Part Numbers Affected:
See Document Body

Unshielded

Applies to the following Leviton part numbers:

49255, 49355, 49455, 5G596, 69586, 6A586, 49256, 5G597, 69587, 6A587

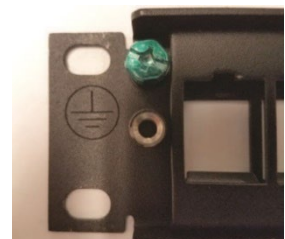
- Unshielded panels bond to the rack or cabinet directly (using star washers) or optionally (for applicable panels) with a Unit Bonding Conductor (UBC).
- Unshielded panels are supplied with star washers or with a grounding stud and green grounding screw or both.
- If using star washers the rack mount screws must be tightened sufficiently for the star washer to cut through the panel finish to bare metal, creating the patch panel bond to the rack. The bonding path is the panel metal → star washer → screw head → screw threads → rack rail threads.
- If using the ground stud and green grounding screw a UBC is fashioned by the installer from installer provided materials
- #12 AWG is the minimum size for a UBC



Standard-Density Shielded Patch Panels

Applies to the following Leviton part numbers: 4S255-Sxx, 4S255-WSx, 4S256-Sxx, 4S256-WSx

- These panels are provided with a grounding stud and green ground screw.
- The Unit Bonding Conductor (UBC) is fashioned by the installer from installer provided materials
- #12 AWG is the minimum size for UBC, but #6 AWG is considered best practice



USA
Network Solutions Headquarters
+1 (800) 722 2082
infoUSA@leviton.com

Leviton Berk-Tek Cable: +1 (800) 237 5835
berktek.info@leviton.com

Asia Pacific
+852 3620 2602
infoAPAC@leviton.com

Canada
+1 (800) 461 2002
infoCanada@leviton.com

Europe
+44 (0) 1592 772124
infoEurope@leviton.com

Latin America
MX: +52 (55) 2128 6286
LATAM: +52 (55) 2333 5963
infoLATAM@leviton.com

Middle East & Africa
+971 (4) 247 9800
infoMEA@leviton.com

NETWORK SOLUTIONS PRODUCTS ARE AVAILABLE WORLDWIDE IN OVER 100 COUNTRIES. VISIT US ONLINE AT LEVITON.COM/NS TO LEARN MORE.

High-Density Shielded Patch Panels

Applies to the following Leviton part numbers: 4S255-D48, 4S255-W48, 4S256-D48

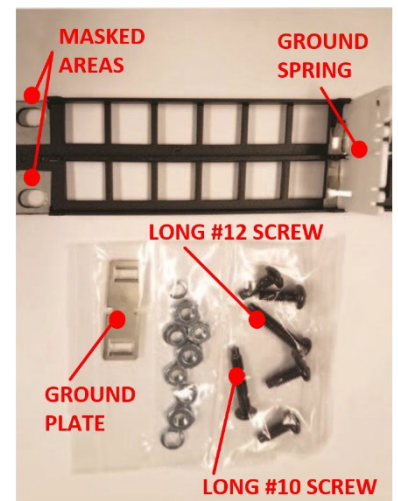
- The included bonding/grounding stud is a long rack mount screw (#12-24 and #10-32 supplied).
- This long screw bonds the panel in the masked upper right corner.
- The long #12 screw is used for the 12-24 tapped rails and 12-24 cage nuts.
- The long #10 screw is used for 10-32 tapped rails and 10-32, M5, and M6 cage nuts.
- The UBC is secured to the long screw with nuts and lock washers



Shielded e2XHD Snap-in Cassette Patching System

Applies to the following Leviton part numbers: E2X1F-S48, E2X1A-S48, E2X1F-E48, E2X1A-E48

- Bonding/Grounding is accomplished via ground spring, ground plate, and masked areas on the rear of the panel.
- The ground post is a #12 or #10 rack-mount screw (both are included with these panels).
- The long #12 screw is used for 12-24 tapped rails and 12-24 cage nuts.
- The long #10 screw is used for 10-32 tapped rails and 10-32, M5, and M6 cage nuts
- The UBC is secured to the long screw with nuts and lock washers



USA
Network Solutions Headquarters
+1 (800) 722 2082
infoUSA@leviton.com

Leviton Berk-Tek Cable: +1 (800) 237 5835
berktek.info@leviton.com

Asia Pacific
+852 3620 2602
infoAPAC@leviton.com

Canada
+1 (800) 461 2002
infoCanada@leviton.com

Europe
+44 (0) 1592 772124
infoEurope@leviton.com

Latin America
MX: +52 (55) 2128 6286
LATAM: +52 (55) 2333 5963
infoLATAM@leviton.com

Middle East & Africa
+971 (4) 247 9800
infoMEA@leviton.com

NETWORK SOLUTIONS PRODUCTS ARE AVAILABLE WORLDWIDE IN OVER 100 COUNTRIES. VISIT US ONLINE AT LEVITON.COM/NS TO LEARN MORE.

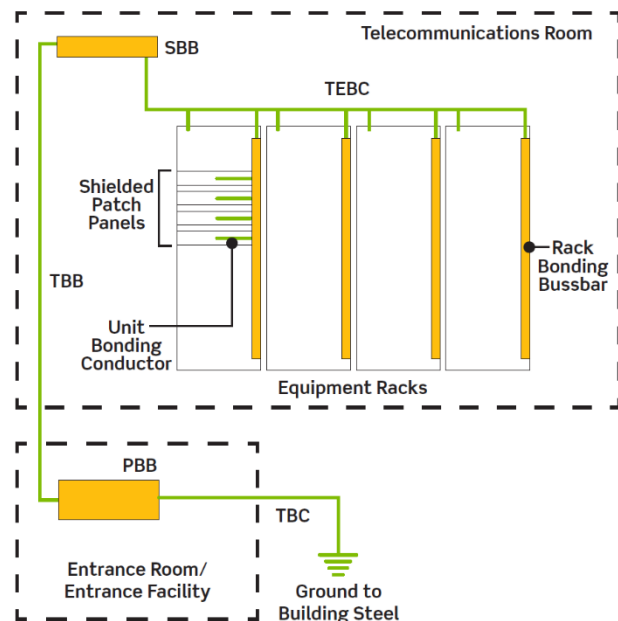
Ensure Shielded Installation Bonding Integrity

The general best practices below highlight the basic grounding/bonding elements within a single telecommunications room. Refer to TIA-607-D standard for additional elements required for a larger Telecommunications Grounding System.

- Follow standards-compliant methodology to install and verify an effective telecommunications grounding system.
- Follow the manufacturer's instruction to properly install shielded connectors, cables, patch-cords, and patch panels.
- Finally, install individual #6 AWG Unit Bonding Conductors (UBC) between each shielded patch panel and the rack or cabinet bonding element. While #12 AWG UBCs are the minimum called out by grounding and bonding standards, #6 AWG is the industry best practice.

Install the Telecommunications Grounding System Per TIA-607-D

- Use a Secondary Bonding Busbar (SBB), formerly known as a Telecommunications Grounding Busbar (TGB), within the Telecommunications Room/Horizontal Cross-connect (TR/HC). The SBB should be bonded to the Primary Bonding Busbar (PBB), formerly Telecommunications Main Grounding Busbar (TMGB). This bonding element is called the Telecommunications Bonding Backbone (TBB).
- Connections of SBB to the PBB should be made with an appropriate-size, UL listed, two-hole crimp style lug and appropriate gauge cable.
- The PBB should be bonded via Telecommunications Bonding Conductor (TBC) to structural steel/building ground. If a bond to structural steel cannot be obtained, use the electrical system ground point.
- Use recommendations from the TIA-607-D standard for proper conductor gauge for all of the above TBB and TBC connections.
- Racks, Cabinets and Rack Bonding Busbars, are individually bonded to SBB/PBB via connection to a Telecommunications Equipment Bonding Conductor (TEBC).



In Summary

- Install and verify the Telecommunications Grounding System (TBC, PBB, TBB, SBB, and TEBC) Per ANSI/TIA-607-D.
- Install and verify all Leviton shielded permanent links or channels.
- Use the correct bonding/grounding method for whichever patch panel is chosen for the installation.
- Install individual #6 AWG (minimum #12 AWG) equipment Unit Bonding Conductors (UBC) between each shielded patch panel and the rack or cabinet bonding element.
- Shielded permanent links or channels are bonded to the Telecommunications Grounding System at one point (the shielded patch panel). No grounding is done at the work area connector (which is typically a jack in a wallplate).
- Bond unshielded panel metal to equipment racks using provided star washers or provided ground stud and installer provided UBC.
- Find individual patch panel instruction sheets at Leviton.com.

Learn more about Leviton shielded solutions at Leviton.com/Copper.

USA
Network Solutions Headquarters
+1 (800) 722 2082
infoUSA@leviton.com

Leviton Berk-Tek Cable: +1 (800) 237 5835
berktek.info@leviton.com

Asia Pacific
+852 3620 2602
infoAPAC@leviton.com

Canada
+1 (800) 461 2002
infoCanada@leviton.com

Europe
+44 (0) 1592 772124
infoEurope@leviton.com

Latin America
MX: +52 (55) 2128 6286
LATAM: +52 (55) 2333 5963
infoLATAM@leviton.com

Middle East & Africa
+971 (4) 247 9800
infoMEA@leviton.com

NETWORK SOLUTIONS PRODUCTS ARE AVAILABLE WORLDWIDE IN OVER 100 COUNTRIES. VISIT US ONLINE AT LEVITON.COM/NS TO LEARN MORE.