

Section J

SpikeShield®

Power Quality Products

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Power Quality Products TVSS Products Introduction

Panel Protection

The SpikeShield® line of panel surge protection offers a broad selection of products to meet the various requirements of industrial, commercial and institutional applications. No other surge suppression system can meet the flexibility, safety and performance standards set by Hubbell.

Hubbell offers surge suppression products which can handle peak amperage capacities of 40kA to 320kA. Led by the innovative PanelMaster™ series which incorporates a “Hot Swappable™” design, Hubbell offers a 160kA

panel extension that eliminates long lead lengths while providing superior clamping levels.

The SpikeShield product line also includes a line of panels with replaceable modules. This series features improved performance through the use of a low impedance bus-bar design and easily replaceable bolt-down modules.

The SpikeShield branch panel protection system includes the complete compact and economical 100kA series product offering. These products can be attached to branch panels, safety switches and load centers. The 100kA series is

available either in a filtered and non-filtered version, or in a NEMA 12 enclosure.

In addition, Hubbell also offers a 40kA series that can be attached as an appendage or flush mounted to a finished wall next to the panel. The versatility of the 40kA series products allows them to be used on branch panels, as well as main panel protection found in smaller commercial facilities.

For DIN Rail and flange mounted applications, Hubbell offers 40kA series wired products and 65kA parallel-wired products.



Power Quality Products TVSS Products Introduction

The ten most frequently asked questions about surge protection

Where do power problems come from?

Surprise—only about a third of them come from outside your facility from sources such as lightning, utility grid switching and so forth. The great majority of problems come from within the facility from motors or other inductive loads as they switch on and off. Loss of power is another source because as power is restored, it does not come back in a stable fashion, but as a high-voltage transient. Brownouts do not cause electronic equipment to fail, but the transients associated with them do.

What causes transient voltages?

HVAC equipment, elevator motors, robotic equipment—basically, all inductive loads, regardless of size. In the office, they are caused by coffee makers, air conditioners, photocopiers, laser printers and vending machines.

Why has power quality grown into a major issue today?

Computer chips are becoming more dense and, subsequently, more sensitive to even the slightest power surges. In addition, clock speeds, or operating speeds, have increased and reached the range of high-speed transients. And, every time a device turns on, transient voltages may be created—a problem since we use more electrical and electronic devices every year.

How big is the problem?

More than 63 percent of all loss payouts on electronic equipment are due to power problems.

Do some people not have this problem?

No, there is no such thing as a transient-free facility.

What are the symptoms of transient voltages?

There are several: Disruptive symptoms occur when a computer freezes or suffers confused logic (this may often go undiagnosed). Dissipative symptoms result from

repeated exposure to transients and will reduce equipment life. Destructive symptoms—usually caused by lightning or wiring mistakes—are catastrophic and result in major damage.

What is the cost of these problems?

\$26B

Power-related problems cost U.S. companies over \$26 billion a year (that does not include in-home losses).

What does Hubbell offer that other companies do not?

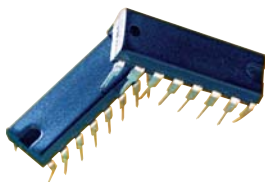
- The broadest product line in the industry.
- Patented Hot Swappable™ panels for the easiest field installation.
- LED diagnostics that indicate the suppressor is functioning properly.
- 10-year limited warranty on all wired-in products.
- Knowledge of your facility's circuits that comes with over 110 years as a leading provider of commercial and industrial wiring devices and systems.

Are diagnostics on a surge suppressor important?

Yes. Many surge suppressors do not have indicators or alarms that report loss of protection. If failure occurs, you don't know about it and may continue to use the faulty suppressors.

Is response time important when selecting a surge suppressor?

Of course. However, transients actually occur in a micro or millisecond, which is relatively slow. Most surge suppressor components react a thousand to a million times faster, so response time is irrelevant. Often, this issue has been the focal point when discussing the merits of transient voltage surge suppression (TVSS) protection. Unfortunately, response time lacks accepted testing parameters. The TVSS industry has yet to adopt sufficient testing specifications for response time.



Power Quality Products
TVSS Products
Service Entrance
Surge Protection Panels
320,000 Peak Amperage Capacity



HBL8P320D



HBL4P320



HBLSC

Service Entrance Surge Protection Panels
200kA Short Circuit Current Rating

Voltage	Catalog Numbers Less Disconnect	With Disconnect	Replacement Modules
Single Phase 120/240V AC	HBL3P320	HBL3P320D	HBL320M120
3Ø Wye 120/208V AC	HBL4P320	HBL4P320D	HBL320M120
3Ø Delta 240V AC	HBL5P320	HBL5P320D	HBL320M240
3Ø Delta 240/120V AC	HBL6P320	HBL6P320D	HBL320M120 & HBL320M240
3Ø Wye 220/380V AC	HBL7P320	HBL7P320D	HBL320M220
3Ø Wye 277/480V AC	HBL8P320	HBL8P320D	HBL320M277
3Ø Delta 480V AC	HBL9P320	HBL9P320D	HBL320M480
3Ø Wye 347/600V AC	HBL10P320	HBL10P320D	HBL320M347
3Ø Delta 600V AC	HBL11P320	–	HBL320M600

Notes: Surge counter available, catalog number HBLSC.
 For technical information, see page J-16.

Service Entrance Surge Panels

Features	Benefits
Thermal fusing.	Thermal fuse prevents the MOVs from overheating when exposed to high current levels, a patented Hubbell exclusive.
Compact design with bus-bar pathways.	Allows installation in areas with space restrictions. Minimizes connecting lead length which reduces impedance ensuring improved clamping performance.
320kA peak amp capacity.	Protects equipment under the worst electrical conditions.
Bolt-down modules.	Assures positive connection and allows for easy replacement.
Fault-current fusing.	Prevents excessive panel damage caused by internal short circuits or component failure.
LED & audible alarm status indicator.	Provides visual and audible indication of panel status. Green for operational, red for module failure. Audible alarm for module failure with silencing.
Sine wave tracking.	Provides uniform clamping throughout the sine wave.

Note: All panel products are UL Listed to Standard 1449.

Power Quality Products
TVSS Products
Service Entrance
Surge Protection Panels
160,000 Peak Amperage Capacity

Service Entrance Surge Protection Panels
200kA Short Circuit Current Rating

Voltage	Catalog Numbers		Replacement Modules
	Less Disconnect	With Disconnect	
Single Phase 120/240V AC	HBL3P160	HBL3P160D	HBL160M120
3Ø Wye 120/208V AC	HBL4P160	HBL4P160D	HBL160M120
3Ø Delta 240V AC	HBL5P160	HBL5P160D	HBL160M240
3Ø Delta 240/120V AC	HBL6P160	HBL6P160D	HBL160M120 & HBL160M240
3Ø Wye 220/380V AC	HBL7P160	HBL7P160D	HBL160M220
3Ø Wye 277/480V AC	HBL8P160	HBL8P160D	HBL160M277
3Ø Delta 480V AC	HBL9P160	HBL9P160D	HBL160M480
3Ø Wye 347/600V AC	HBL10P160	HBL10P160D	HBL160M347
3Ø Delta 600V AC	HBL11P160	–	HBL160M600

Notes: Surge counter available, catalog number HBLSC.
 Flush mount adapter for non-disconnect unit available, catalog number HBLPFMA. For technical information, see page J-16.



HBL8P160



Service Entrance Surge Panels

Features	Benefits
Thermal fusing.	Thermal fuse prevents the MOVs from overheating when exposed to high current levels, a patented Hubbell exclusive.
Compact design with bus-bar pathways.	Allows installation in areas with space restrictions. Minimizes connecting lead length which reduces impedance ensuring improved clamping performance.
160kA peak amp capacity.	Protects equipment under the worst electrical conditions.
Bolt-down modules.	Assures positive connection and allows for easy replacement.
Fault-current fusing.	Prevents excessive panel damage caused by internal short circuits or component failure.
LED & audible alarm status indicator.	Provides visual and audible indication of panel status. Green for operational, red for module failure.
Sine wave tracking.	Provides uniform clamping throughout the sine wave.

Note: All panel products are UL Listed to Standard 1449.



HBL4P160



HBL4P160



Power Quality Products
TVSS Products
PANELMASTER™ Branch Panel
Surge Protection Panels
160,000 Peak Amperage Capacity



HBL4PM160



PanelMaster Panel Extensions
20kA Short Circuit Current Rating

Voltage	Catalog Numbers	Replacement Modules
Single Phase 120/240V AC	HBL3PM160	HBL160PMM120
3Ø Wye 120/208V AC	HBL4PM160	HBL160PMM120
3Ø Wye 277/480V AC	HBL8PM160	HBL160PMM277

*Notes: Surge counter available, catalog number HBLSC.
 For technical information, see page J-16.*



HBL4PM160



PanelMaster™ Series

The most innovative and flexible technology in the surge suppression industry today. The PanelMaster series is a 160kA rated product that mounts on top of your branch panel resulting in the best possible surge protection. The patented feed-through design of the PanelMaster series eliminates long lead lengths and achieves superior clamping levels.

In addition to this, the PanelMaster series by Hubbell also features the non-interrupting “Hot Swappable” design. This patented design allows the end user to replace modules without disconnecting power to the panel.

PanelMaster series’ flexibility allows it to be field-mounted to any manufacturer’s standard panel without consuming a breaker position or valuable wall space. The flexibility of the PanelMaster product line also eliminates delays on job sites caused by custom electronic grade TVSS panels. Only the PanelMaster series by Hubbell provides transient protection to the entire panel in a flexible, easy to install, field serviceable way.



HBL160PMM120



Features	Benefits
Thermal fusing.	Thermal fuse prevents the MOVs from overheating when exposed to high current levels, a patented Hubbell exclusive.
Feed-through connection.	Eliminates connecting leads and provides superior clamping performance.
Hot swappable design.	Allows modules to be replaced without power interruption. Eliminates facility downtime.
Fault-current fusing.	Prevents excessive panel damage caused by internal short circuits or component failure.
LED & audible alarm indicator status.	Provides audible and visual indication of status. Green LED for operational, red LED for module failure.
Sine wave tracking.	Provides uniform clamping throughout the sine wave.

Note: All panel products are UL Listed to Standard 1449.

Power Quality Products

TVSS Products

Branch Panel

Surge Protection Panels

120,000 Peak Amperage Capacity

**Panel-Mounted Branch Panels
200kA Short Circuit Current Rating**

Voltage	Catalog Numbers	Replacement Modules
Single Phase 120/240V AC	HBL3P120	HBL3P120M
3Ø Wye 120/208V AC	HBL4P120	HBL4P120M
3Ø Delta 240V AC	HBL5P120	HBL5P120M
3Ø Delta 240/120V AC	HBL6P120	HBL6P120M
3Ø Wye 220/380V AC	HBL7P120	HBL7P120M
3Ø Wye 277/480V AC	HBL8P120	HBL8P120M
3Ø Delta 480V AC	HBL9P120	HBL9P120M
3Ø Wye 347/600V AC	HBL10P120	HBL10P120M
3Ø Delta 600V AC	HBL11P120	HBL11P120M

*Notes: Surge counter available, catalog number HBLSC.
For technical information, see page J-17.*



HBL8P120



Panel-Mounted Surge Protection

The SpikeShield® line of branch panel surge suppressors provides a 120,000 peak amperage capacity series that includes a compact panel design.

This product line also incorporates the innovative thermal fusing and sine wave tracking features found in the larger-size panel protector products.

The panel series is designed to provide top-of-the-line surge protection in areas that contain dust, dirt and noncorrosive dripping liquids. The panel series comes in a NEMA 12 enclosure that is compact in size and can be mounted adjacent to the branch panel in order to reduce lead lengths and improve protection.

Features	Benefits
Thermal fusing.	Thermal fuse prevents the MOVs from overheating when exposed to high current levels, a patented Hubbell exclusive.
Compact design.	Allows installation in areas with space restrictions and helps minimize connecting lead length which can cause higher impedance.
120kA peak amp capacity.	Provides high level of protection for equipment under severe electrical conditions.
LED & audible alarm.	Provides visual and audible indication of suppressor status.
Sine wave tracking.	Provides uniform clamping throughout the sine wave.

Note: All panel products are UL Listed to Standard 1449.

Power Quality Products

TVSS Products

Branch Panel

Wired-In Surge Protection

80,000 and 100,000 Peak Amperage Capacity



HBL4W100A



HBL4W100A

HBLWFMA
(W100 Series Only)Wired-in Branch Panel Surge Protection (100,000 Peak Amperage)
5kA Short Circuit Current Rating*

Voltage	Catalog Numbers	Without Filter
Single Phase 120/240V AC	HBL3W100A	HBL3W100NFA
3Ø Wye 120/208V AC	HBL4W100A	HBL4W100NFA
3Ø Delta 240V AC	HBL5W100A	-
3Ø Delta 240/120V AC	HBL6W100A	-
3Ø Wye 220/380V AC	HBL7W100A	-
3Ø Wye 277/480V AC	HBL8W100A	-
3Ø Delta 480V AC	HBL9W100A	-
3Ø Wye 347/600V AC	HBL10W100A	-
3Ø Delta 600V AC	HBL11W100A	-

Notes: Flush mount adapter available, catalog number HBLWFMA.

For technical information, see page J-17.

* 22kA SCCR w/field installed fusing, see instructions.

Wired-in Branch Panel Surge Protection (80,000 Peak Amperage)
100kA Short Circuit Current Rating

Voltage	Catalog Numbers
Single Phase 120/240V AC	HBL3W80+
3Ø Wye 120/208V AC	HBL4W80+
3Ø Wye 220/380V AC	HBL7W80+
3Ø Wye 277/480V AC	HBL8W80+
3Ø Delta 480V AC	HBL9W80+

Note: + Non-metallic NEMA 4X housing

Wired-In Branch Panel Surge Protection

The wired-in surge suppression block design is ideal for areas where space is a major consideration. The surge unit can be mounted directly to the panel through a chase nipple connection which will reduce lead length and impedance while increasing protection levels. The 100W series has a 5 kA SCCR which may be increased to 22 kA with the use of fusing to achieve the higher rating. The 120/240V single phase and 120/208V three phase models of the 100W family are available in a non-filtered version. The non-filtered version will not interfere with clocking and power line carrier signals (for lighting controls) by allowing safe passage for the control signals while maintaining protection for the sensitive electronic system. The control signals, if filtered, could cause certain systems to go out of synchronization. The 80W series has a 100 kA SCCR rating and features a non-metallic NEMA 4X housing for outdoor applications or when used on the plant floor in wash-down areas.

Features	Benefits
Thermal fusing (100W).	Thermal fuse prevents the MOVs from overheating when exposed to high current levels, a patented Hubbell exclusive.
Compact design.	Allows installation in areas with space restrictions and helps minimize connecting lead length which can cause higher impedance.
80/100kA peak amp capacity.	Provides high level of protection for equipment under severe electrical conditions.
LED & audible alarm.*	Provides visual and audible indication of suppressor status.
Sine wave tracking.	Provides uniform clamping throughout the sine wave.

Notes: Wired-in products are UL Listed to Standard 1449.

* 80W series features LED only.

Power Quality Products

TVSS Products

Branch Panel

Wired-In Surge Protection

40,000 Peak Amperage Capacity

**Wired-in Panel Surge Protection
22 & 5kA Short Circuit Current Rating**

Voltage	Housing	SCCR	Catalog Numbers
Single Phase 120V AC	Non-metallic	22 kA	HBL1W40 ▽
Single Phase 240V AC	Non-metallic	5 kA	HBL2W40 *▽
Single Phase 120/240V AC	Non-metallic	22 kA	HBL3W40 ▽
Single Phase 120/240V AC	Non-metallic	22 kA	HBL3W40B ◇

*Notes: *For international applications.
For technical information, see page J-18.
▽ indicates side nipple.
◇ indicates back nipple.*



HBL3W40



**Flush Mount Panel Surge Protection
22kA Short Circuit Current Rating**

Voltage	SCCR	Catalog Number
Single Phase 120/240V AC	22 kA	HBL3F40

Wired-In Panel Surge Protection For Industrial, Commercial, Institutional and Residential Applications

The Hubbell SpikeShield® product line also includes the most versatile offering of wired-in surge suppressors for industrial, commercial, institutional and residential applications. The product offering includes single phase models that provide a 40,000 peak amperage capacity. This product can be mounted to the branch panel or inside a cabinet. This product offering also has a version that includes a mounting plate for installation on finished walls. Hubbell has incorporated its top-of-the-line innovation into this compact and economical design. Thermal fusing protection on all modes and sine wave tracking are some of the features that make this the top product in its class.



HBL3F40



Features	Benefits
Thermal fusing.	Thermal fuse prevents the MOV from overheating when exposed to high current levels, a patented Hubbell exclusive.
NEMA Type 4X housing.	Provides rain and dust-tight protection for reliable outdoor use.
LED & audible alarm.	Provides visual and audible indication of suppressor status.
Sine wave tracking.	Provides uniform clamping throughout the sine wave.

Note: Wired-in products are UL Listed to Standard 1449.

Power Quality Products TVSS Products DIN Rail and Terminal Mounted

OEM Surge Protection

40,000 & 65,000 Peak Amperage Capacity



HBL1DR65

OEM/Specialty Surge Protection

The SpikeShield® offering includes a selection of hard-wired surge suppressors that can be internally mounted inside equipment cabinets. The DR series are DIN Rail mounted, provide 65,000 peak amp capacity and are parallel wired. The TDR series come with an integral DIN Rail mounting system and a set of attachable mounting feet that allows the device to be flange mounted. The TDR models provide 40,000 peak amp capacity, up to -75dB of noise filtration and are series wired. Load ratings of 5, 15, and 20 amps are available in the 120-volt model and may be ordered with or without a set of dry contacts for remote signaling capability. Both products are ideal for panel builders, manufacturers and integrators of control or instrumentation cabinets for industrial, medical or commercial applications.

DIN Rail Mounted, Parallel-Wired (DR Series)

Voltage	Catalog Numbers
Single Phase 120V AC	HBL1DR65
Single Phase 240V AC	HBL2DR65*

Notes: *For international applications.
For technical information, see page J-18.

DIN Rail/Flange Mounted, Series Wired (TDR Series)

Rating	Catalog Numbers	
	Without Dry Relay Contact	With Dry Relay Contact
5A, 120V AC	HBL1TDR755	HBL1TDR755DC
15A, 120V AC	HBL1TDR7515	HBL1TDR7515DC
20A, 120V AC	HBL1TDR7520	HBL1TDR7520DC
20A, 230V AC	—	HBL2TDR7520DC*

Notes: *For international applications.
Includes finger-safe terminal guards.



HBL1TDR755

Features	Benefits
-75dB Noise filtration.	Protects sensitive electronics from electrical noise that is prevalent in most manufacturing facilities.
40kA peak current rating.	Prevents transients from destroying or degrading electronics on the plant floor.
Optional dry contacts.	All models may be ordered with a set of dry contacts for remote signaling capability.
Installation flexibility.	The TDR products may be DIN Rail mounted to any standard 35mm DIN Rail or flange mounted by attaching the four mounting feet that come with each unit.

Note: DIN rail and terminal mounted products are UL recognized in accordance with Standard 1449.

Power Quality Products

TVSS Products

HOMEGUARD™ Utility Meter Socket

Whole House Surge Protection

100,000 Peak Amperage Capacity

Hubbell HomeGuard Meter-Mounted Surge Suppression

Description	Voltage	Catalog Number
Meter-socket mounted, whole-house surge suppressor.	Single Phase 120/240V AC	HBL65MPC

Note: For technical information, see page J-18.



HBL65MPC



HomeGuard™ Meter-Mounted Residential Surge Protection

The SpikeShield® TVSS offering from Hubbell also includes a product designed to provide “whole house protection” at the utility meter socket. The HomeGuard surge suppression system provides service entrance protection against lightning or other externally generated transients. This products has a 100,000 peak amp capacity for single phase 200 amp meter sockets. HomeGuard is designed to isolate your home from external events that affect power quality.

Features	Benefits
Thermal fusing.	Thermal fuse prevents the MOV from overheating when exposed to high current levels, a patented Hubbell exclusive.
Meter socket adapter design.	Mounts quickly and easily to the meter socket at the entrance.
Audible alarm.	Audible alarm for module failure.

Note: HomeGuard is UL (cUL) Listed as a secondary surge arrester and tested to ANSI/IEEE C62.11 Standard.



HBL65MPC



Hubbell HOMEGUARD meter-mount surge suppresssion is pictured connected to local utility service (above). HOMEGUARD meter-mounted surge protection should be installed by your local utility service.



LED indicators of surge protection and receptacle wiring status.

15 amp resettable circuit breaker for overload and short circuit protection.

Optional Fax/Modem protection. CATV and DSS option also available.

Filtering capacitor for noise and small transients which can cause operational and data errors.

Thermal fusing prevents MOV's from overheating when exposed to sustained overvoltages. Meets UL 1449, 2nd Edition. Up to 83kA peak current rating.

45 degree angle plug.

Four outlets provided with transformer block spacing.

Audible Alarm

Audible alarm sounds when surge protection is no longer functioning.

HBL8PS1380M

TVSS Products

Power Quality Products

Straight Blade, 2 Pole, 3 Wire Grounding

15 Ampere, 125 Volts 60Hz

SPIKESHIELD® Surge Suppression Plug Strips

SpikeShield® Surge Suppression Plug Strips

Catalog Numbers	Application/Description	Power Cord	# Of Outlets	Correct Wire LED	Surge Status LED	Ratings
HBL6PSHG**	Plug strip, surge protection and hospital grade devices. Black metal housing.	6'	6	No	Yes	15A, 125V AC 450 joules L-N 225 joules L-G 225 joules N-G
HBL6PS*	Plug strip, Audible Alarm, Industrial grade receptacles & surge protection.	6'	6	No	Yes	15A, 125V AC 450 joules L-N 225 joules L-G 225 joules N-G
HBL6PS100	Plug strip, w/ surge protection	3'	6	No	No	15A, 125V AC 70 joules L-N
HBL6PS370	Plug strip w/ surge protection.	6'	6	Yes	Yes	15A, 125V AC 370 joules
HBL6PS370M	Plug strip w/ surge protection & fax/modem protection.	6'	6	Yes	Yes	15A, 125V AC 370 joules
HBL6PS37015	Plug strip w/ surge protection.	15'	6	Yes	Yes	15A, 125V AC 370 joules
HBL6PS370M15	Plug strip w/ surge protection & fax/modem protection.	15'	6	Yes	Yes	15A, 125V AC 370 joules
HBL7PS900	Plug strip w/ filtering & surge protection.	6'	7	Yes	Yes	15A, 125V AC 900 joules
HBL7PS900M	Plug strip w/ filtering, surge protection & fax/modem protection.	6'	7	Yes	Yes	15A, 125V AC 900 joules
HBL7PS90015	Plug strip w/ filtering & surge protection.	15'	7	Yes	Yes	15A, 125V AC 900 joules
HBL8PS1380M	Plug strip w/ filtering, surge protection & audible alarm & fax/modem protection.	6'	8	Yes	Yes	15A, 125V AC 1380 joules
HBL8PS1690D	Plug strip w/ filtering & surge protection for audible alarm & CATV and DSS systems.	6'	8	Yes	Yes	15A, 125V AC 1690 joules

Notes: *HBL6PS features industrial grade HBL5252BK receptacles.
**HBL6PSHG features hospital grade HBL8200HW receptacles and a HBL8115V hospital grade plug.

TVSS Module

Catalog Numbers	Application/Description	Input
HBLCATC	TVSS module for antenna & CATV.	Plugs into standard receptacle.
HBLTELC	TVSS module for telephone & fax/modem.	Plugs into standard receptacle.

Note: For technical information, see page J-19.



HBL6PS



HBL6PS370



HBL7PS900



HBL8PS1380M



HBLTELC

Power Quality Products

TVSS Products

Surge Suppression Receptacles

Features and Benefits

Hubbell has the broadest offering of TVSS receptacles in the industry with technology that is unsurpassed. Inside Hubbell TVSS receptacles are two 22mm square disc MOVs providing 240 joules of surge protection for each mode. The nylon component shield protects the printed circuit board from moisture and contaminants. An all-glass PC board provides superior moisture immunity for longer life in humid environments. Conformal coating is provided on the printed circuit board for additional moisture immunity.

Meets UL Standards 1449 and 498;
CSA Certified.

Damage-alert alarm sounds when surge protection is no longer functioning...and keeps sounding until the receptacle is replaced or muting screw is utilized.

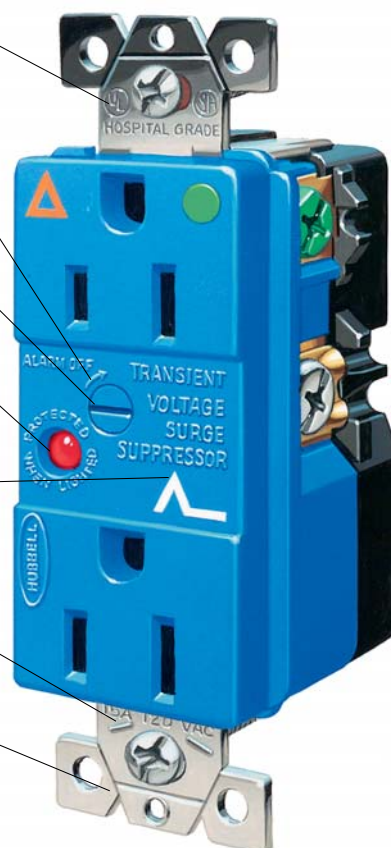
Muting screw allows damage-alert alarm to be silenced until device is replaced.

Power-on indicator light verifies instantly that power is available at the receptacle and the suppression circuit is fully functional; light off means power has been interrupted; flashing light indicates surge protection circuitry has been damaged.

Distinctive surge symbol provides quick visual identification of surge suppression receptacle. High-impact nylon face resists breakage.

Automatic grounding clip attached to bridge meets NEC requirements.

Fits standard wall box.



IG8262S



Power Contacts

Tandem modified bypass contact design produces superior contact pressure and lower operating temperature.



Terminations

External backwire provides visual inspection of terminations. "U" shape clamps are for strand containment and wire bundling.



Printed Circuit Board

Two 22mm square disc MOVs provide 240 joules of surge protection for each mode. The nylon component shield protects the printed circuit board from moisture and contaminants. An all-glass printed circuit board provides superior moisture immunity for longer life in humid environment. Conformal coating is provided on printed circuit board for additional moisture immunity.

Note: The effectiveness of TVSS devices diminishes with the increase in distance between the device and the equipment to be protected.

Power Quality Products

TVSS Products

Straight Blade, 2 Pole, 3 Wire Grounding

15 and 20 Ampere, 125 Volts AC 60 Hz

Specification Grade and Hospital Grade
Surge Suppression Duplex and 4-PLEX® Receptacles



NEMA 5-15R
15A 125V
UL CSA



NEMA 5-20R
20A 125V
UL CSA

Circuit Guard®, Specification Grade Duplex Receptacles

Description	Color	Catalog Numbers	
Surge suppression receptacles with light, 240 joules/15000A per mode.	Blue	HBL5260SA	HBL5360SA
	Ivory	HBL5260ISA	HBL5360ISA
	Office White	HBL5260OWSA	HBL5360OWSA
Surge suppression receptacles with light and alarm, 240 joules/15000A per mode.	Blue	HBL5262SA	HBL5362SA
	Ivory	HBL5262ISA	HBL5362ISA
	Gray	HBL5262GYSA	HBL5362GYSA
	White	HBL5262WSA	HBL5362WSA
	Office White	HBL5262OWSA	HBL5362OWSA
Isolated ground, surge suppression receptacles with light and alarm, 240 joules/15000A per mode.	Blue	IG5262SA	IG5362SA
	Ivory	IG5262ISA	IG5362ISA
	Gray	IG5262GYSA	IG5362GYSA
	White	IG5262WSA	IG5362WSA
	Office White	IG5262OWSA	IG5362OWSA
4-PLEX surge suppression receptacles with lights. 80 joules/6500A per mode.	Blue	HBL415S	HBL420S
	Ivory	HBL415IS	HBL420IS

Circuit Guard, Hospital Grade Duplex Receptacles

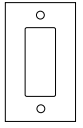
Description	Color	Catalog Numbers	
Surge suppression receptacles with light and alarm, 240 joules/15000A per mode.	Blue	HBL8262SA	HBL8362SA
	Ivory	HBL8262ISA	HBL8362ISA
	Gray	HBL8262GYSA	HBL8362GYSA
	White	HBL8262WSA	HBL8362WSA
	Red	HBL8262RSA	HBL8362RSA
Isolated ground, surge suppression receptacles with light and alarm, 240 joules/15000A per mode.	Blue	IG8262SA	IG8362SA
	Ivory	IG8262ISA	IG8362ISA
	Gray	IG8262GYSA	IG8362GYSA
	White	IG8262WSA	IG8362WSA
	Orange	IG8262OSA	IG8362OSA
Red	IG8262RSA	IG8362RSA	
4-PLEX surge suppression receptacles with lights, 80 joules/6500A per mode.	Blue	—	HBL420HS
	Ivory	—	HBL420HIS

4-PLEX Accessories

Description	Color	Catalog Numbers
4-PLEX adapter plates for 1 and 2 gang, and 4" (101.6) square device boxes.	Blue Ivory	HBL4APBL HBL4API
4-PLEX portable box. Portable 4" (101.6) square box with cord grip. Accepts up to .66" (16.8) diameter cord.	Ivory	HBL4PBI

Note: 4-PLEX box is not UL Listed.

Wall Plates

Configuration	High-Impact Nylon			Plated Steel	Stainless Steel (S/S)		
	Color	Standard	Mid-Size		Brass		
 1-gang	Blue	—	SPJ26C*	Chrome CH26	Smooth S/S S26	Smooth S/S SJ26 ▲	Smooth Brass B26
	Blue	—	SPJ26	Brass BP26			
	Ivory	—	PJ26C*				
	Ivory	HPS1I	PJ26				
	Gray	HPS1GY	PJ26G				
	White	HPS1WA	PJ26W				
	O White	HPS1OW	—				
	Orange	IGHPS1**	—				
	Red	HPS1R	PJ26R				

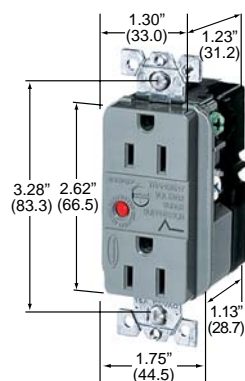
Notes: *Premarked "COMPUTER ONLY." Lettering is block 1/4" high.

**Premarked "ISOLATED GROUND." Lettering is block 1/4" high.

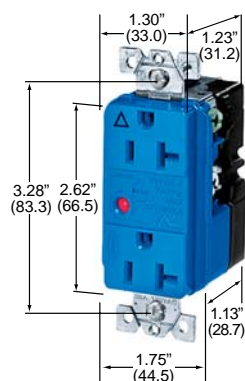
▲ Jumbo size plate.

See Section A for technical data for 4-PLEX devices.

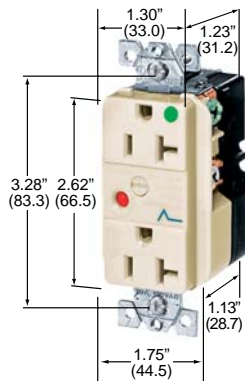
For technical information, see page J-19.



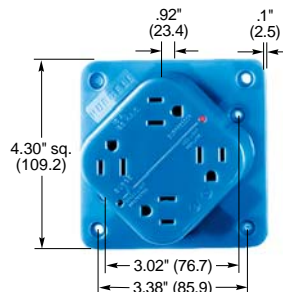
HBL5262GYSA



IG5362SA



HBL8362ISA



HBL415S



Power Quality Products TVSS Products Specifications

Service Entrance Panel Protection (from page J-4)

HBL-P320 Series

200 kA Short Circuit Current Rating.

	HBL3P320/D	HBL4P320/D	HBL5P320/D	HBL6P320/D	HBL7P320/D	HBL8P320/D	HBL9P320/D	HBL10P320/D	HBL11P320
Operating Specifications									
Voltage	Single Phase 120/240V AC								
Max Cont. Operating Voltage	3Ø Wye 120/208V AC	3Ø Delta 240V AC	3Ø Delta 240/120V AC	3Ø Wye 220/380V AC	3Ø Wye 277/480V AC	3Ø Delta 480V AC	3Ø Wye 347/600V AC	3Ø Delta 600V AC	
Frequency	50/60/400 Hz								
Maximum Surge Current per Phase	320kA								
Maximum Surge Current per Mode	160kA: L-N, L-G, N-G								
Operating Temperatures	-14° to 140° F (-10° to 60° C)								
Diagnostics	Red & Green Status LEDs, Diagnostic Test Switches, Dry Contacts, Audible Alarm, Optional Surge Counter								
Performance									
UL Clamping Voltage	330V	330V	700V	700/400V	700V	800V	1500V	2000V	2000V
ANSI/IEEE C62.41 Clamping Voltage: Category A3	330V	330V	608V	330/504V	492V	580V	728V	576V	1680V
200A(Ringwave) Category B3	382V	382V	720V	382/600V	572V	684V	1168V	776V	1740V
500A(Ringwave) Category C1	412V	412V	800V	412/652V	640V	772V	1520V	912V	1760V
3000A(Impulse) Normal EMI/RFI									
Rejection	Up to -50dB								
Thermal Fusing	Yes								
Fault Current Fusing	200k AIC Fusing Per Mode								
Mechanical Description		Dimensions		Housing Rating		Product Weight Pounds		Terminal Accommodation	
		6.32"D x 16.45"W x 25.25"H		NEMA 12, Metallic		37		#2 AWG /#6 AWG on units with disconnect	
Product Warranty 10 Year									

Service Entrance Panel Protection (from page J-5)

HBL-P160 Series

200 kA Short Circuit Current Rating.

	HBL3P160/D	HBL4P160/D	HBL5P160/D	HBL6P160/D	HBL7P160/D	HBL8P160/D	HBL9P160/D	HBL10P160/D	HBL11P160
Operating Specifications									
Voltage	Single Phase 120/240V AC								
Max Cont. Operating Voltage	3Ø Wye 120/208V AC	3Ø Delta 240V AC	3Ø Delta 240/120V AC	3Ø Wye 220/380V AC	3Ø Wye 277/480V AC	3Ø Delta 480V AC	3Ø Wye 347/600V AC	3Ø Delta 600V AC	
Frequency	50/60/400 Hz								
Maximum Surge Current per Phase	160kA								
Maximum Surge Current per Mode	80kA: L-N, L-G, N-G								
Operating Temperatures	-14° to 140° F (-10° to 60° C)								
Diagnostics	Red & Green Status LEDs, Diagnostic Test Switches, Dry Contacts, Audible Alarm, Optional Surge Counter								
Performance									
UL Clamping Voltage	400V	400V	700V	600/400V	600V	800V	1500V	900V	1700V
ANSI/IEEE C62.41 Clamping Voltage: Category A3	364V	364V	560V	364/588V	564V	600V	1048V	624V	732V
200A(Ringwave) Category B3	480V	480V	592V	480V/792V	720V	772V	1184V	856V	1192V
500A(Ringwave) Category C1	560V	560V	864V	560/864V	832V	960V	1740V	1152V	1980V
3000A(Impulse) Normal EMI/RFI									
Rejection	Up to -50dB								
Thermal Fusing	Yes								
Fault Current Fusing	100k AIC Fusing per mode								
Mechanical Description		Dimensions		Housing Rating		Product Weight Pounds		Terminal Accommodation	
with Disconnect		6.32"D x 16.45"W x 25.25"H		NEMA 12, Metallic		37		#6 AWG	
without Disconnect		4.70"D x 10.50"W x 16.20"H		NEMA 12, Metallic		15		#2 AWG	
Product Warranty 10 Year									

PanelMaster Series (from page J-6)

HBL-PM160 Series

20 kA Short Circuit Current Rating.

	HBL3PM160	HBL4PM160	HBL8PM160
Operating Specifications			
Voltage	Single Phase 120/240V AC		3Ø Wye 277/480V AC
Max Cont. Operating Voltage	150/300		320/640
Frequency	50/60/400 Hz		
Maximum Surge Current per Phase	160kA		
Maximum Surge Current per Mode	80kA: L-N, L-G, N-G		
Operating Temperatures	-14° to 140° F (-10° to 60° C)		
Diagnostics	Red & Green Status LEDs, Diagnostic Test Switches, Dry Contacts, Audible Alarm, Optional Surge Counter		
Performance			
UL Clamping Voltage	400V	400V	800V
ANSI/IEEE C62.41 Clamping Voltage: Category A3	330V	330V	580V
200A(Ringwave) Category B3	382V	382V	684V
500A(Ringwave) Category C1	412V	412V	772V
3000A(Impulse) Normal EMI/RFI			
Rejection	Up to -50dB		
Thermal Fusing	Yes		
Fault Current Fusing	200k AIC Fusing per mode		
Mechanical Description		Dimensions	
		5.75"D x 20.12"W x 17.5"H	
Housing Rating		Product Weight Pounds	
NEMA 1, Metallic		27	
Terminal Accommodation		#250 MCM	
Product Warranty 10 Year			



Power Quality Products

TVSS Products Specifications

Panel-Mounted Surge Protection (from page J-7)

HBL-P120 Series

	HBL3P120	HBL4P120	HBL5P120	HBL6P120	HBL7P120	HBL8P120	HBL9P120	HBL10P120	HBL11P120
Operating Specifications									
Voltage	Single Phase 120/240V AC	3Ø Wye 120/208V AC	3Ø Delta 240V AC	3Ø Delta 240/120V AC	3Ø Wye 220/380V AC	3Ø Wye 277/480V AC	3Ø Delta 480V AC	3Ø Wye 347/600V AC	3Ø Delta 600V AC
Max Cont. Operating Voltage	150/300	150/300	300	300/150	275/390	320/640	640	390/780	780
Frequency	50/60/400 Hz								
Maximum Surge Current per Phase	120kA								
Maximum Surge Current per Mode	60kA: L-N, L-G, N-G								
Operating Temperatures	-14° to 140° F (-10° to 60° C)								
Diagnostics	Red & Green Status LEDs, Diagnostic Test Switches, Dry Contacts, Audible Alarm, Optional Surge Counter								
Performance									
UL Clamping Voltage	400V	400V	700V	700/400V	700V	800V	1500V	900V	1800V
ANSI/IEEE C62.41 Clamping Voltage:									
Category A3 200A(Ringwave)	300V	300V	475V	450/300V	540V	540V	940V	640V	1125V
Category B3 500A(Ringwave)	350V	350V	570V	590/350V	670V	670V	1365V	900V	1150V
Category C1 3000A(Impulse)	380V	380V	685V	715/380V	780V	780V	1736V	1088V	2096V
Normal EMI/RFI Rejection	Up to -50dB								
Thermal Fusing	Yes								
Mechanical Description			Housing Rating	Product Weight Pounds			Supplied With		
			NEMA 1, Metallic	17			#2 AWG		
Product Warranty			10 Year						

Wired-In Surge Protection (from page J-8)

HBL-W100 (NF) Series

	HBL3W100/A HBL3W100NFA	HBL4W100/A HBL4W100NFA	HBL5W100/A	HBL6W100/A	HBL7W100/A	HBL8W100/A	HBL9W100/A	HBL10W100/A	HBL11W100A
Operating Specifications									
Voltage	Single Phase 120/240V AC	3Ø Wye 120/208V AC	3Ø Delta 240V AC	3Ø Delta 240/120V AC	3Ø Wye 220/380V AC	3Ø Wye 277/480V AC	3Ø Delta 480V AC	3Ø Wye 347/600V AC	3Ø Delta 600V AC
Max Cont. Operating Voltage	150/300	150/300	300	300/150	275/390	320/640	640	390/780	780
Frequency	50/60/400 Hz								
Maximum Surge Current per Phase	100kA								
Maximum Surge Current per Mode	50kA: L-N, L-G, N-G								
Operating Temperatures	-14° to 140° F (-10° to 60° C)								
Diagnostics	Green Status LED, Audible Alarm, Dry Contact								
Performance									
UL Clamping Voltage	400V	400V	800V	700/400V	700V	800V	1500V	900V	1800V
ANSI/IEEE C62.41 Clamping Voltage:									
Category A3 200A(Ringwave)	362V/468V	362V/468V	832V/832V	362V/504V	468V/752V	508V/756V	576V/912V	1640V/1640V	584V/952V
Category B3 500A(Ringwave)	476V/532V	476V/532V	936V/936V	476V/628V	532V/856V	660V/856V	660V/856V	780V/1000V	772V/1008V
Category C1 3000A(Impulse)	540V/540V	540V/540V	952V/952V	540V/796V	540V/840V	832V/856V	992V/1016V	1820V/1820V	1040V/1040V
Normal EMI/RFI Rejection	Up to -40dB/Up to -20dB								
Thermal Fusing	Yes								
Mechanical Description		Dimensions	Housing Rating		Product Weight Pounds		Terminal Accommodation		
		2.60"D x 10.60"W x 4.75"H	NEMA 1, Metallic		3		#10 AWG 18" Wire Leads		
Product Warranty		10 Year							

Wired-In Surge Suppressors (from page J-8)

HBL-W80 Series

	HBL3W80	HBL4W80	HBL7W80	HBL8W80	HBL9W80
Operating Specifications					
Voltage	Single Phase 120/240V AC	3 Phase Wye 120/208V AC	3Ø Wye 220/380V AC	3Ø Wye 277/480V AC	3Ø Wye 480V AC
Max Cont. Operating Voltage	140/280V	140/280V	275/550V	320/640V	550V
Frequency	50/60/400 Hz				
Maximum Surge Current per Phase	80 kA	80 kA	80 kA	80 kA	80 kA
Maximum Surge Current per Mode	40 kA	40 kA	40 kA	40 kA	40 kA
Short Circuit Current Rating	100 kA	100 kA	100 kA	100 kA	100 kA
Operating Temperatures	-14° to 140° F (-10 to 60° C)				
Diagnostics	Green Status LED, Normally Closed 250V AC 5A Rated Remote Contacts				
Performance					
UL Clamping Voltage	400V	400V	800V	700V	1500V
ANSI/IEEE C62.41 Clamping Voltage:					
Category A3 200A(Ringwave)	315V	315V	650V	690V	1430V
Category B3 500A(Ringwave)	370V	370V	730V	780V	1550V
Category C1 3000A(Impulse)	435V	435V	790V	890V	1600V
Category C3 10,000A(Impulse)	730V	730V	1200V	1200V	2100V
Thermal Fusing	Yes				
Mechanical Description		Dimensions	Product Weight		Terminal Accommodation
Single Phase Models		4.5"D x 2.9"W x 2.5"H	2.0		#12 AWG 18" Wire Leads
Three Phase Models		5.3"D x 5.3"W x 2.3"H	3.6		
Product Warranty		10 Year			



200 kA Short Circuit Current Rating.

200 kA Short Circuit Current Rating.

100 kA Short Circuit Current Rating.

Power Quality Products TVSS Products Specifications



HBL3W40



HBL3F40



HBL1DR65



HBL1TDR755



HBL65MPC

Wired-In Surge Suppressors (from page J-9)

HBLW40 Series

	HBL1W40	HBL2W40	HBL3W40(B)	HBL3F40
Operating Specifications				
Voltage	Single Phase 120V AC	Single Phase 240V AC	Single Phase 120/240V AC	Single Phase 120/240V AC
Max Cont. Operating Voltage	150	320	150/300	150/300
Frequency	50/60/400 Hz			
Maximum Surge Current per Phase	40kA			
Maximum Surge Current per Mode	40kA: L-N 20kA: N-G			
Operating Temperatures	14° to 140° F (-10 to 60° C)			
Diagnostics	Green Status LEDs, Audible Alarm			
Performance				
UL Clamping Voltage	500V	800V	500V	500V
ANSI/IEEE C62.41 Clamping Voltage:				
Category A3 200A(Ringwave)	500V	815V	500V	500V
Category B3 500A(Ringwave)	534V	928V	534V	534V
Category C1 3000A(Impulse)	538V	973V	538V	538V
Normal EMI/RFI Rejection	Up to -40dB			
Thermal Fusing	Yes			
Mechanical Description				
Dimensions	2.77"D x 3.0"W x 3.6"H		Housing Rating Nema 4X	Product Weight 1
Supplied With	#10, AWG 18" Wire Leads			
Product Warranty				
	10 Year			

OEM/Specialty DIN Rail/Flange-Mount Surge Protection (from page J-10)

* indicates Relay Contact	HBL1DR65	HBL2DR65	HBL1TDR755*	HBL1TDR7515*	HBL1TDR7520*	HBL2TDR7520*
Operating Specifications						
Voltage	Single Phase 120V AC	Single Phase 240V AC	Single Phase 120V AC	Single Phase 120V AC	Single Phase 120V AC	Single Phase 240V AC
Max Cont. Operating Voltage	150	320	50/60/400 Hz			
Frequency	50/60/400 Hz					
Maximum Surge Current per Phase	65kA	40kA				40kA
Maximum Surge Current per Mode	32.5kA	20kA				20kA
Operating Temperatures	14° to 140° F (-10° to 60° C)					
Diagnostics	Green Status LEDs, Audible Alarm, Dry Contact					
Performance						
UL Clamping Voltage	400V	800V	330V	330V	330V	800V
ANSI/IEEE C62.41 Clamping Voltage:						
Category A3 200A(Ringwave)	400V	808V	180V	180V	180V	380V
Category B3 500A(Ringwave)	432V	848V	185V	185V	185V	390V
Category C1 3000A(Impulse)	464V	904V	300V	300V	300V	740V
Normal EMI/RFI Rejection (@50Ohms)	Up to -40dB	Up to -40dB	Up to -75dB	Up to -75dB	Up to -75dB	Up to -75dB
Thermal Fusing	Yes					
Mechanical Description						
Dimensions	2.28"D x 2.82"W x 3.5"H		5.26"D x 4.00"W x 2.23"H			
Housing Rating	NEMA 1, Non-Metallic		NEMA 1, Non-Metallic			
Product Weight Pounds	0.516		1			
Terminal Accommodation	#12 AWG		#12 AWG			
Product Warranty						
	10 Year					

HomeGuard™ Residential Surge Protection (from page J-11)

	HBL65MPC			
Operating Specifications				
Voltage	Single Phase 120/240V AC			
Frequency	50/60/400 Hz			
Maximum Surge Current per Phase	100kA			
Maximum Surge Current per Mode	50kA: L-G			
Operating Temperatures	14° to 140° F (-10° to 60° C)			
Diagnostics	Audible Alarm			
Performance				
UL Clamping Voltage	400V			
ANSI/IEEE C62.41 Clamping Voltage:				
Category A3 200A(Ringwave)	600V			
Category B3 500A(Ringwave)	660V			
Category C1 3000A(Impulse)	690V			
Normal EMI/RFI Rejection (@50Ohms)	Up to -20dB			
Thermal Fusing	Yes			
Mechanical Description				
Dimensions	3.63"H x 8.73"W	Housing Rating NEMA 3R, Non-Metallic	Product Weight Pounds 2	Connection Method Meter Base
Product Warranty				
	10 Year			

Power Quality Products TVSS Products Specifications

SpikeShield® Surge Suppression Plug Strips (from page J-13)

	100 Series	370 Series	900 Series	1380 Series	1690 Series	6PS Series	HBLTELC/HBLCATC
Operating Specifications							
Max. Cont. Operating Voltage	130	130	130	130	130	130	270Vpk/24Vpk
Operating Frequency	50/60/400 Hz	50/60/400 Hz	50/60/400 Hz	50/60/400 Hz	50/60/400 Hz	50/60/400 Hz	50/60/400 Hz
Maximum Surge Current	6.5kA	27kA	54kA	77kA	60kA	30kA	500/200
Operating Temperatures	14° to 140° F (-10° to 60° C)	14° to 140° F (-10° to 60° C)	14° to 140° F (-10° to 60° C)	14° to 140° F (-10° to 60° C)	-40° to 160° F (-40° to 71° C)	14° to 140° F (-10° to 60° C)	14° to 140° F (-10° to 60° C)
Performance							
UL 1449 Clamping Voltage	400V	400V	330V	330V	330V	330V	230/45V
EMI/RFI Noise Rejection	-20dB	-20dB	-30dB	-40dB	-40dB	-40dB	-
Thermal Fusing	Yes	Yes	Yes	Yes	Yes	No	No
Sine Wave Tracking	-	-	Yes	Yes	Yes	No	-
Warranty							
Product Warranty	Life Time	Life Time	Life Time	Life Time	Life Time	No	Life Time
Downline Warranty	-	\$5,000	\$10,000	\$50,000	\$50,000	No	-
Physical Specifications							
Housing Type	High Impact Polystyrene, UL Recognized Plastic						
Color	Office White	Office White	Office White	Office White	Office White	Black	Office White
Weight	.82 lbs.	.82 lbs	.84 lbs.	1.28 lbs.	1.34 lbs.	2.3 lbs.	-
Dimensions							
Length	11.6"	11.6"	14.4"	11.8"	11.8"	15.5"	-
Height	1.7"	1.7"	1.7"	1.6"	1.6"	1.75"	-
Width	2.4"	2.4"	2.4"	3.7"	3.7"	2.0"	-

Surge Suppression Receptacles (from page J-15)

Typical Specification—HBL5262SA/HBL5362SA	Part	Duplex	4-PLEX
Type—2 Pole, 3 Wire, Grounding	Receptacle	15A/20A	15A/20A
	Top	Nylon	Lexan
	Base	Nylon	Lexan
	Power Contact	.031" (.8) Brass	.032" (.8) Brass
	Contact Design	Tandem Modified Bypass	Triple Wipe
	Mounting Strap	.050" (1.3) Steel-Zinc Coated	-
Rating—15A, 125V AC/20A, 125V AC	Clamping Plate	.031" (.8) Brass	.031" (.8) Brass-Line Terminal Plate
Certification—UL Listed File E2186 Listed to UL Standards 498 Receptacles Meets UL1449, Transient Voltage Surge Suppressors	Terminal Screws	Brass #8-32	Brass #8-32
CSA Certified to Specification C22.2 No. 42.	Grounding Screw	Steel (Green)	Brass (Green)
ANSI/IEEE C62.41 (IEEE 587)	Auto Grd. Clip	Stainless Steel	.050" (1.3) Ground Plate
Installation Categories "A" (Ring Wave) "B" (Unidirectional Impulse)	Mounting Screws	Steel-Zinc Plated	Brass
	LED	Red	Green
	Alarm Muting Screw	Nylon	-

Performance

Electrical	Duplex	4-PLEX
Frequency	60Hz	60Hz
Voltage	120V AC + 10%–15%	120V AC + 10%–15%
Response Time*	Approximately 5 ns	Approximately 5 ns
Protection Modes	Normal and Common Modes	Normal and Common Modes
Transient Suppression	Peak Energy (10 X 100 μs)	Peak Current (8 X 20 μs)
Normal Mode (L-N)	240 joules	15000A
Common Mode (L-G), (N-G)	240 joules	15000A
Suppressed Voltage		
UL Portable/Plug-In Test (8 X 20 μs 500A)	340V	412 V
UL Permanently Wired Test (8 X 20 μs 3000A)	490V	530V
UL Listed	400V max	600V max
EMI/RFI Attenuation at 50 Ohms Normal Mode	-40 dB	-
Operating Temperature	32° to 140° F (0° to 60° C)	-40° to 140° F (-40° to 60° C)
Flammability	UL 94V-2	UL 94V-2



HBL6PS370



HBL7PS900



HBL8PS1380M



HBL5262SA

HBL5362ISA

Dimensions in Inches (mm)

www.hubbell-wiring.com



Wiring Device-Kellems

J-19

Power Quality Products SPIKESHIELD® Power Line Conditioners



Wiring Device Ratings
 SPIKESHIELD® is a trademark of HUBBELL INCORPORATED.
 HUBBELL is a registered trademark of HUBBELL INCORPORATED.
 GROUND ZERO™ is a registered trademark of POWER SOLUTIONS & APPLICATIONS, INC.
 CAUTION: HAZARDOUS VOLTAGE inside. NO USER SERVICEABLE PARTS. REFER TO
 OWNER MANUAL FOR INSTRUCTIONS. DO NOT USE. NO FUSE. USE ONLY
 QUALIFIED PERSONNEL TO INSTALL OR REPAIR. REFER TO OWNER
 MANUAL FOR INSTRUCTIONS. REFER TO OWNER MANUAL FOR
 CHASSIS GROUNDING INSTRUCTIONS. REFER TO OWNER MANUAL FOR
 CHASSIS GROUNDING INSTRUCTIONS.

CAUTION: THE TOTAL SYSTEM CHASSIS RISK CURRENT SHOULD NOT EXCEED 100mA. ATTENTION: LE COURANT A RISQUE DE TOTAL DU BÂTI DU SYSTEME NE DOIT PAS EXCÉDER 100mA. CUIDADA: LA CORRIENTE DE RIESGO TOTAL DEL SISTEMA NO DEBE EXCEDER DE 100mA.

DANGER: EXPLOSION HAZARD. DO NOT USE IN THE PRESENCE OF FLAMMABLE ANESTHETICS. DANGER: RISQUE D'EXPLOSION. NE PAS EMPLOYER EN PRESENCE D'ANESTHESIQUE INFLAMMABLE. PELIGRO: RIESGO DE EXPLOSION NO USAR EN PRESENCE DE UN ANESTESICO INFLAMMABLE.

UL US LISTED LINE CONDITIONER BR24 FOR USE IN HEALTH CARE FACILITIES

Wiring Device Ratings
 INPUT: 120VAC 3.0A 1700VA
 OUTPUT: 120VAC 3.0A 1700VA
 DATE CODE: 1998-08-30
 MADE IN USA / PATENT NO. 5,800,000
 AUTHORIZED U.S. & FOREIGN PATENT PENDING

Power Quality Products

Power Line Conditioners

Features and Benefits

In today's modern and competitive business world, highly sophisticated computer systems are relied upon to perform multiple functions and applications including wide area networks (WAN), ATM's, point of sale systems (POS) and computer aided manufacturing. As the microprocessor "brain" of computer systems becomes more advanced and operates at increasingly faster speeds, precautions must be taken to protect this sensitive circuitry.

Microprocessor's Susceptible to Power Quality

Most users of microprocessor based equipment are not aware that they are susceptible to power quality problems. Furthermore, they are not aware of how problems with power quality can affect their microprocessor based systems. As microprocessor technology becomes more advanced, it becomes more susceptible to problems associated with the quality of power being provided.

Power quality disturbances such as spikes or surges, high frequency electrical noise, harmonics and ground contamination can cause numerous problems with computer driven systems. These problems include corrupted or lost data, lockups, crashes, and other unexplained system problems.

Patented Technology

SpikeShield Power Line Conditioners by Hubbell are specifically designed to protect today's sophisticated microprocessor based equipment from these damaging power disturbances. The power line conditioners from Hubbell feature zero ground technology that filters noise, stops surges and spikes and guarantees a clean, zero ground reference which is crucial to maintaining data integrity, system stability and high operating efficiency. The ground system is the "0" reference point for data access and transmission and must be free of contamination.

SpikeShield Power Line Conditioners are available in **Straight Blade**, **Twist-Lock®**, **Hard Wired** and **Medical Grade** versions. The new line of conditioners are also available in 2 Amp through 20 Amp versions. SpikeShield Power Line Conditioners are UL 1012 Listed for Power Supplies and Certified for CAN CSA-22.2, No. 107.1 Power Supplies. The Medical Grade models are UL Listed to UL544 Professional Medical and Dental Equipment and cUL listed to CSA 22.2, No. 125 Electromedical Equipment.

Features

Eliminates noise, interference and other power disturbances that could have damaging effects on today's more sophisticated Pentium® and other computer chips.

Removes harmful ground spikes while maintaining a zero ground reference at each terminal for reliable data access and transmission.

10 Year limited product warranty.



Straight Blade



Hard Wired



Medical Grade



Twist-Lock®

Pentium® is a registered trademark of the Intel Corporation.

Power Quality Products

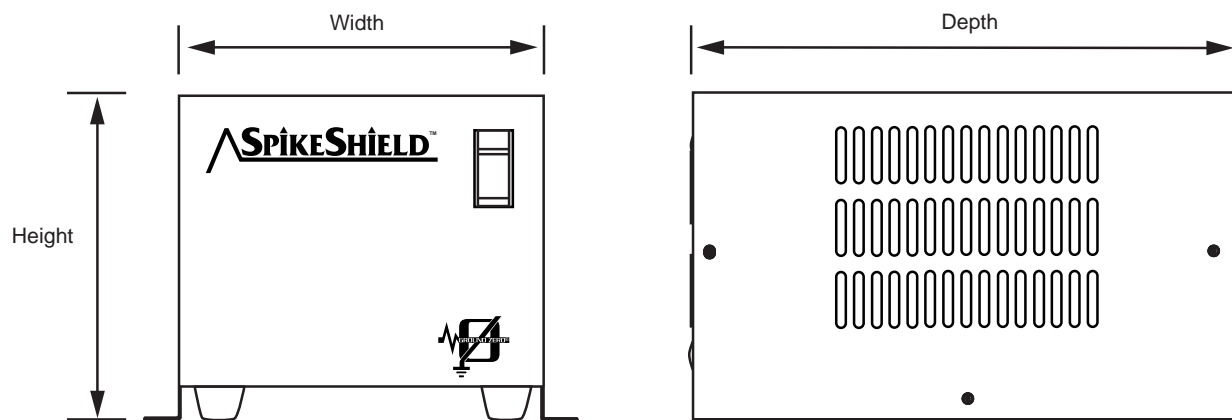
Power Line Conditioners Ordering Information

SpikeShield™ Power Line Conditioners

Catalog Numbers	Input / Output Voltage (AC)	Load Current (Amps at 120V)	Quantity of Receptacles	Recept. NEMA Configuration	Plug NEMA Configuration	Dimensional Information			
						Height	Width	Depth	Weight
IT2111SA	120V AC	2A (240VA)	2	5-15R	5-15P	5.65"	5.90"	8.75"	14 lbs.
IT2111TLA	120V AC	2A (240VA)	2	L5-15R	L5-15P	5.65"	5.90"	8.75"	14 lbs.
IT3111SA	120V AC	3A (360VA)	2	5-15R	5-15P	5.65"	5.90"	8.75"	15 lbs.
IT3111TLA	120V AC	3A (360VA)	2	L5-15R	L5-15P	5.65"	5.90"	8.75"	15 lbs.
IT3111SHGA	120V AC	3A (360VA)	2	5-15R	5-15P	5.65"	5.90"	8.75"	15 lbs.
IT5111SA	120V AC	5A (600VA)	2	5-15R	5-15P	5.65"	5.90"	9.50"	17 lbs.
IT5111STLA	120V AC	5A (600VA)	2 2	5-15R L5-15R	L5-15P	5.65"	5.90"	9.50"	17 lbs.
IT5111HWA	120V AC	5A (600VA)	–	–	–	5.65"	5.90"	9.50"	17 lbs.
IT5111SHGA	120V AC	5A (600VA)	2	5-15R	5-15P	5.65"	5.90"	9.50"	17 lbs.
IT8311SA	120V AC	8.3A (1000VA)	2	5-15R	5-15P	6.50"	7.00"	11.0"	27 lbs.
IT8311STLA	120V AC	8.3A (1000VA)	2 2	5-15R L5-15R	L5-15P	6.50"	7.00"	11.0"	27 lbs.
IT8311HWA	120V AC	8.3A (1000VA)	–	–	–	6.50"	7.00"	11.0"	27 lbs.
IT8311SHGA	120V AC	8.3A (1000VA)	2	5-15R	5-15P	6.50"	7.00"	11.0"	27 lbs.
IT1211SA	120V AC	12A (1500VA)	3	5-15R	5-15P	7.50"	8.50"	13.5"	44 lbs.
IT1211HWA	120V AC	12A (1500VA)	–	–	–	7.50"	8.50"	13.5"	44 lbs.
IT1211SHGA	120V AC	12A (1500VA)	3	5-15R	5-15P	7.50"	8.50"	13.5"	44 lbs.
IT1611SA	120V AC	16A (2000VA)	3	5-20R	5-20P	7.50"	8.50"	13.5"	48 lbs.
IT1611HWA	120V AC	16A (2000VA)	–	–	–	7.50"	8.50"	13.5"	48 lbs.
IT2011TLA	120V AC	20A (2500VA)	3	L5-20R	L5-20P	7.50"	8.50"	13.5"	55 lbs.
IT2011HWA	120V AC	20A (2500VA)	–	–	–	7.50"	8.50"	13.5"	55 lbs.

Suffix Key: S = Straight Blade, HW = Hard Wire, TL = Twist-Lock®, STL = Combination Straight Blade/Twist-Lock, SHG = Straight Blade/Medical Grade.

Dimensions



Power Quality Products

Power Line Conditioners Specifications

Performance Specifications

Tested under power to ANSI/IEEE C62.41

Category A: 600V, 200A, 0.5msec. risetime, 100kHz decay.
 Category B: 600V, 500A, 0.5msec. risetime, 100kHz decay.

Noise Rejection-Isolation

Normal Mode: Less than 10 Volts - a 600 to 1 reduction.
 Common Mode: Less than 0.5 Volts - a 12,000 to 1 reduction.

50 Ampere Common Mode Ground Surge Current Test (39dB reduction)

Ground Surge Current Reduction Factor of 88 to 1.

50 Ohm Common Mode Insertion Test (45dB at 40MHz typical)

Common Mode Noise Power Attenuation of 31 to 1.
 Common Mode Noise Voltage Attenuation of 178 to 1.

Underwriters Laboratories

UL 1012 Listed for Power Supplies and Certified for CAN CSA-22.2, No. 107.1 Power Supplies, The Medical Grade models are UL Listed to UL544 Professional Medical and Dental Equipment and cUL listed to CSA 22.2, 125 Electromedical Equipment.

Notes: Hubbell SpikeShield Medical Grade power line conditioners use a medical grade paint which is non-hydroscopic in nature. This grade of paint is required by UL 544 to prevent the spread of disease and/or contamination.



Straight Blade



Medical Grade

Electrical Specifications

Model Series	IT2111XX	IT3111XX	IT5111XX	IT83111XX	IT12111XX	IT16111XX	IT20111XX
Voltage In/Out	120V AC	120V AC	120V AC	120V AC	120V AC	120V AC	120V AC
Load Current (Amps)	2A	3A	5A	8.3A	12A	16A	20A
Output Rating (VA)	240VA	360VA	600VA	1000VA	1500VA	2000VA	2500VA
Circuit Breaker Rating (Amps)	3	4	6	9	13	18	20
Load Regulation	±4.5%	±4.0%	±3.0%	±2.0%	±1.5%	±1.5%	±1.5%
Inrush (1/2 Cycle Amps)	80	120	180	180	410	520	610
Efficiency	92%	92%	94%	95%	96%	96%	96%

Features

- Magnetic Circuit Breaker Protection
- Input Plug 15 or 20 Amp
- Output Receptacles (Duplex Style Isolated Ground)
- Power Indicator - Green LED

Power Quality Products
Isolated Ground Receptacles



Power Quality Products

Isolated Ground Story

Hubbell Isolated Ground Receptacles

Why do you need an isolated ground device?

When mounting a conventional receptacle in a steel box, the ground is commonly established through the existing electrical system. This is done by using either the grounding clip on the receptacle's mounting strap, or by running a ground wire (which is part of the "normal" existing system) to the green grounding screw.

In a conventional receptacle the grounding contacts are connected to the mounting strap and the green grounding screw. Thus, even when a separate green wire is brought to the receptacle, it is still tied into the normal ground. This occurs since the mounting strap is in contact with the box grounding system, therefore, a "pure" isolated path to the ground is not established.

The Problem

The conventional grounding receptacle provides safety for personnel and equipment. However, the ground network also serves as a giant antenna and conductor of electrical noise. This electrical noise is electromagnetic interference and is caused by numerous transient ground currents. This can produce random transient electrical signals on the grounding system.

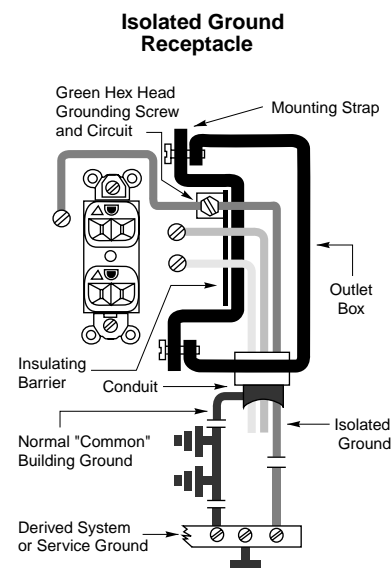
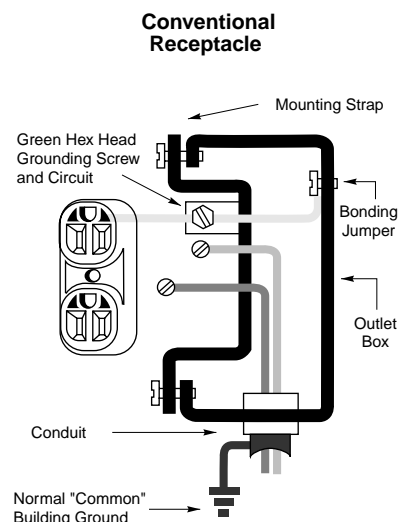
As a result, sensitive electronic equipment such as point of purchase terminals, accounting machines, computers and highly sensitive medical and communications equipment, can pick up these transient signals. This can interfere with the proper operation of the equipment.

The Solution

The isolated ground receptacle was developed by Hubbell over 30 years ago. This receptacle is similar to a conventional receptacle except for one important change. Insulating barrier construction, first patented by Hubbell, isolates the ground contacts from the mounting strap. The green grounding screw is connected directly to the grounding contacts. The isolated equipment grounding circuit is completed by running an isolated ground wire to the green grounding screw. This ground wire passes through intermediate panel boards without being connected to their grounding terminal and terminates directly at an equipment grounding conductor terminal of the derived system or service, in accordance with NEC® requirements.

The Result

This "isolated ground" can be kept relatively free of electrical noise. This is achieved since the grounding network has less branches, fewer sources of noise, and is connected to the ground at a single point.



Power Quality Products Straight Blade Isolated Ground

Features and Benefits

Wrap-around, locked on brass mounting strap provides additional support strength for receptacle assembly.

Green grounding screw connected directly to the grounding contacts.

Insulation barrier construction — first patented by Hubbell — isolates ground contacts from the mounting strap.

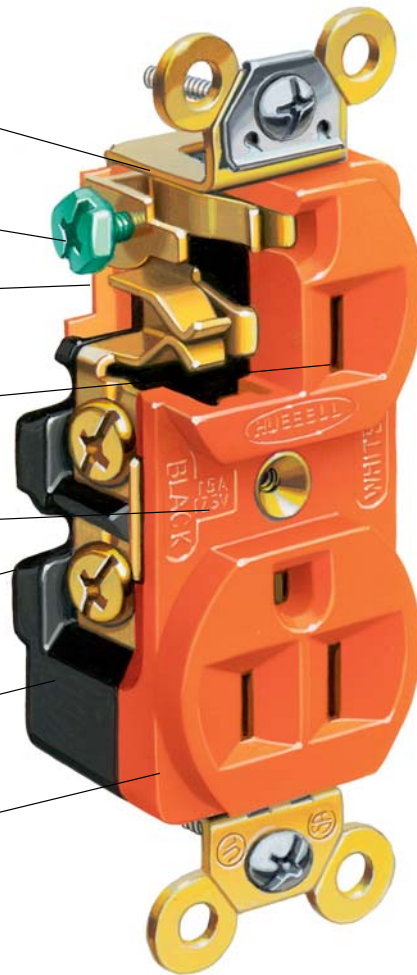
Straight blade 15A and 20A, 125V duplex receptacles are available in a variety of colors.

Amperage and voltage clearly indicated.

Back- and side-wiring capability provides easy installation with stranded or solid wire.

Dimensionally stable, reinforced thermoplastic polyester provides impact strength in addition to heat and flame resistance.

Impact-resistant nylon face.



Isolated Ground Receptacles, A “Clean” Path Provides A “Clean” Ground For Sensitive Equipment

In February, 1968, Hubbell patented the first isolated ground receptacle. Today – when a clean, noise-free ground is more important than ever – Hubbell is still setting the standard.

Hubbell uses insulation barrier construction on many models to isolate the ground contacts from the mounting strap. The green grounding screw is connected directly to the grounding contacts. In this way, ground contacts are separated from the mounting strap and also from the conventional grounding system. The isolated ground circuit is completed by running a dedicated insulated ground wire from the system ground buss to the green grounding screw.

And there's more to the Hubbell line:

- Available in 20 NEMA configurations and a total of 57 different type receptacles.

- Versatility and mobility: With Hubbell's grounding method, Hubbell's IG devices can be mounted in boxes, on metal panels...almost anywhere.
- Hubbell quality: Every Hubbell IG device meets and exceeds all applicable codes and standards, plus the toughest standard of all...the Hubbell standard of excellence.

IG triangle on the face of the receptacle clearly indicates isolated ground device on the face of the receptacle.



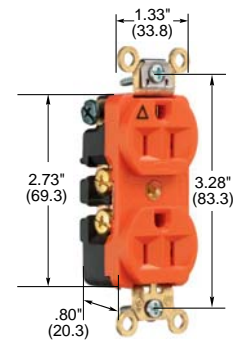
Power Quality Products Isolated Ground Devices

Straight Blade Receptacles

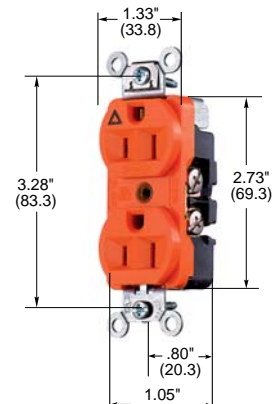


Isolated Ground, Straight Blade, Duplex and Single Receptacles

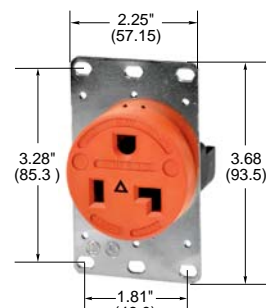
Rating	NEMA Number	NEMA Configuration	Description	Catalog Numbers
15A 125V	5-15R		Duplex, orange.	IG5262
			Duplex, ivory.	IG5262I
			Duplex, red.	IG5262R
			Duplex, gray.	IG5262GY
			Duplex, orange.	CR5252IG
			Duplex, black.	CR5252IGBK
			Duplex, gray.	CR5252IGGY
			Duplex, ivory.	CR5252IGI
			Duplex, office white.	CR5252IGOW
			Duplex, white.	CR5252IGW
20A 125V	5-20R		Style Line® orange, duplex.	IG2152
			4-PLEX® orange.	IG415
			Single, orange.	IG5261
			Duplex, orange.	IG5362
			Duplex, ivory.	IG5362I
			Duplex, gray.	IG5362GY
			Duplex, white.	IG5362W
			Duplex, red.	IG5362R
			Duplex, orange.	CR5352IG
			Duplex, black.	CR5352IGBK
Duplex, gray.	CR5352IGGY			
Duplex, ivory.	CR5352IGI			
Duplex, office white.	CR5352IGOW			
Duplex, white.	CR5352IGW			
15A 250V	6-15R		Duplex, orange.	IG5662
			Single, orange.	IG5661
			20A 250V	6-20R
Single, orange.	IG5461			
30A 125V	5-30R		Single, orange.	IG9308
30A 250V	6-30R		Single, orange.	IG9330



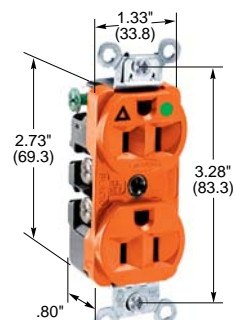
IG5262



CR5252IG



IG9308



IG8200

Hospital Grade, Isolated Ground, Straight Blade Receptacles

Rating	NEMA Number	NEMA Configuration	Description	Catalog Numbers
15A 125V	5-15R		Duplex, orange.	IG8200
			Duplex, red.	IG8200R
			Single, orange.	IG8210
20A 125V	5-20R		Duplex, orange.	IG8300
			Duplex, red.	IG8300R
			Style Line® orange.	IG2182
			Style Line® ivory.	IG2182I
			Style Line® white.	IG2182WA
Single, orange.	IG8310			

Note: Accessories for 4-PLEX Receptacles located on page A-9.



Power Quality Products Isolated Ground TWIST-LOCK® Receptacles

Features and Benefits

All-brass mounting and grounding system provides a low resistance ground path.

Insulation barrier construction first patented by Hubbell isolates ground contact from the mounting strap.

Wire restraint recess for both back and side wiring reduces terminal loosening.

High-impact, abuse-resistant nylon face.

Glass-filled thermoplastic polyester base is heat and impact resistant, providing dimensional stability and strength.

Color-coding by voltage rating helps ensure mating of proper devices.

One-piece contact with long spring arm (low stress) and oxide cutting nibs; prevents stress and overheating.

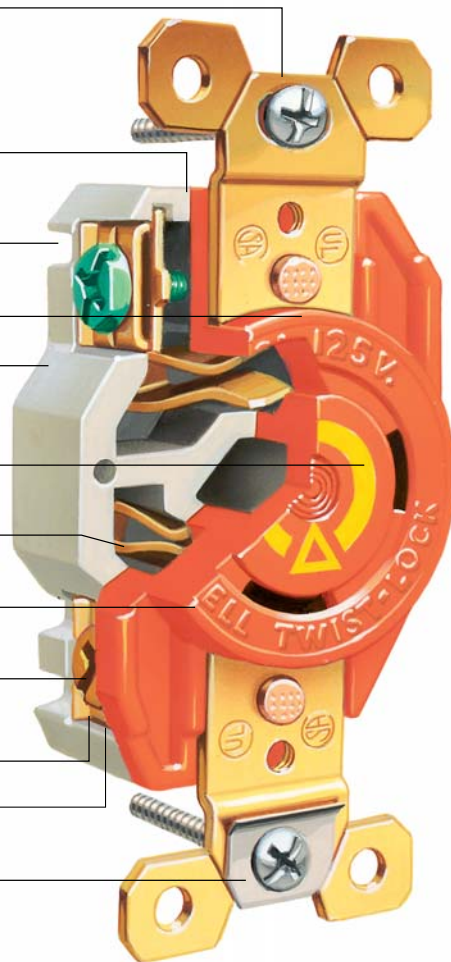
Boss diameter is 1.562" (39.6) on 20 and 30A devices, simplifying installation.

#10 silicon bronze terminal screw provides excellent strength and resistance to corrosion and stripping.

Accommodates both back and side wiring.

External back wiring allows visual inspection of terminations.

Automatic grounding clip assures ground continuity between mounting strap and metal wall box.



Face color-coding by voltage facilitates locating and mating of proper devices.



Power Quality Products Isolated Ground Devices

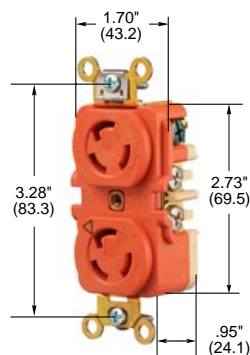
Twist-Lock® Receptacles



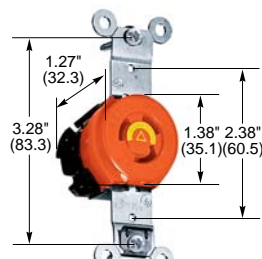
Isolated Ground Twist-Lock Receptacles

Rating	NEMA Number	NEMA Configuration	Description	Catalog Numbers
15A 125V	L5-15R		2 pole, 3 wire, duplex. 2 pole, 3 wire, single.	IG4700A IG4710
15A 250V	L6-15R		2 pole, 3 wire, duplex. 2 pole, 3 wire, single.	IG4550A IG4560
20A 125V	L5-20R		2 pole, 3 wire, single.	IG2310
20A 250V	L6-20R		2 pole, 3 wire, single.	IG2320
20A 480V AC	L8-20R		2 pole, 3 wire, single.	IG2340
30A 125V	L5-30R		2 pole, 3 wire, single.	IG2610
30A 250V	L6-30R		2 pole, 3 wire, single.	IG2620
20A 125/250V	L14-20R		3 pole, 4 wire, single.	IG2410
20A 3Ø 250V AC	L15-20R		3 pole, 4 wire, single.	IG2420
30A 125/250V	L14-30R		3 pole, 4 wire, single.	IG2710
30A 3Ø 250V AC	L15-30R		3 pole, 4 wire, single.	IG2720
20A 3Ø Y 120/208V AC	L21-20R		4 pole, 5 wire, single.	IG2510
30A 3ØY 120/208V AC	L21-30R		4 pole, 5 wire, single.	IG2810

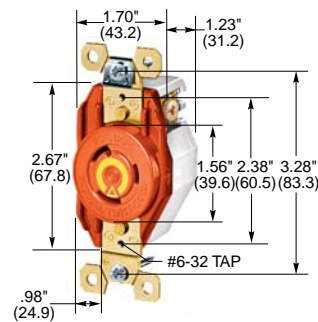
Note: All receptacles are orange.



IG4700A



IG4710



IG2310

Power Quality Products

Isolated Ground Devices Specifications



IG5262

Receptacle	Part	Description
Typical Specification – Catalog No. IG5262.	Receptacle	15A
Manufacturer's Identification – Hubbell IG5262.	Top	Nylon
Description – Isolated Ground, Straight Blade, Duplex Receptacle.	Base	PET*
Type – 2 Pole, 3 Wire, Grounding.	Triple Wipe Power Contacts	0.031" (.8) Phosphor Bronze
Rating – 15A, 125V.	Wire Clamp	0.062" (1.6) Steel Nickel Plated
Certification – UL Listed, CSA Certified.	Mounting Strap	0.050" (1.3) Brass
	Insulator	Nylon
	Terminal Screws	Brass #8-32
	Grounding Screw	Brass (Green)
	Center Assembly-Rivet	Brass
	Auto Grd. Clip	Stainless Steel
	Flat. Hd. Mtg. Screws	Steel Zinc Plated

Performance

Electrical

Dielectric Voltage	Withstands 2,000V minimum
Max. Working Voltage	125V or as rated.
Current Interrupting	Certified for current interrupting at full rated current.
Temperature Rise	Max 30 °C temperature rise at full rated current after 50 cycles of overload at 150% of rated direct current.

Mechanical

Terminal Identification	Terminals identified in accordance with UL 498 and CSA C22.2 No. 42 (Brass, White, Green).
Terminal Accommodation	#14-10 AWG copper conductor only.
Product Identification	Ratings are permanent part of device.

Environmental – Material

Flammability	Top: UL 94V-2, Base: UL 94V-0 and UL 94-5 VA.
Operating Temperatures	Maximum continuous 75 °C; minimum -40 °C/F (w/o impact) maximum (140 °F, 75°C).

*Polyethylene Terephthalate Polyester