



Power Conditioning Products



*True-Power® Constant
Voltage Regulators .250–15.0 kVA*



Hard-wired SPD



*SPIKESHIELD Branch Panel
Wired-In Surge Protective Devices
External Type 1SPD Products*





Acme True-Power® products are specially designed ferroresonant transformers. We have refined this long standard solution for power problems to meet the needs of today’s electrical environments. Our designs result in wider input range (95-130Vac) and output regulation for both input line and load changes. This makes our products suitable to operate under any load condition. Plus greater sound suppression reduces audible hum.

Applications

- Industrial Automation and Control Equipment and Electronic Test Equipment
- Robotics
- X-Ray Equipment
- Communications Equipment

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Section 9 | General Description and Features

Acme True-Power® products consist of speciality designed ferroresonant transformers. Although ferroresonant transformers have been an economical solution to power problems for many years, it took the skills of Acme's highly regarded engineering staff to refine it to meet today's exacting requirements.

For example, typical ferroresonant transformers have an input limited to 100-130 V. Acme's True-Power® units have an input range of +10/-20% around input voltage nominals of 120/208/240 and 480 volts. At 120 volt input, this relates to 95-130 volts.

The typical ferroresonant transformer has limited electrical noise suppression capability. True-Power® power line conditioners have the following noise attenuation capability:

Common Mode: 120 db
 Transverse Mode: 60 db

The typical ferroresonant transformer has an audible hum that can be objectionable in most offices. Acme's True-Power® power line conditioners are encapsulated in epoxy to lower sound levels below ANSI standard C 89.2.

The typical ferroresonant transformer has on output regulation of $\pm 3\%$ for input line changes only. Acme's True-Power® power line conditioners have an output regulation of $\pm 3\%$ for input line and load changes, making them suitable for operation at any load condition.

Features

- Reliable, regulated output voltage when input voltage varies, even to brownout levels.
- Extended operation to 65% of nominal when operated at 60% of full load.
- Noise rejection—effectively suppressing transient spikes and surges—120 db common mode and 60 db transverse mode.
- Rapid response to line and load changes—5% variation in 8m sec, 10% variation in 16m sec.
- Hold up time of 3m sec for complete loss of input power.
- Inherent overload and short circuit protection, without thermo protectors, fuses or circuit breakers, for immediate recovery when the overload is removed.
- Sinusoidal output features, less than 3% harmonic distortion, improves input wave forms which have total harmonic distortions of greater than 5%.
- Available in 250 through 15,000 VA in hardwired models.
- Handle multiple primary input voltages.
- UL and cUL Listed

Applications

- Industrial Automation and Control Equipment
- Electronic Test Equipment
- Robotics
- X-Ray Equipment
- Communications Equipment

Specifications

Input (Primary)	95-132 VAC (Hardwired) ②
	166-228 VAC
	192-264 VAC
	384-528 VAC
Phase:	1 Phase
② All hardwired models will accommodate these primary input voltages.	

Specifications

Output (Secondary)	120/208/240 VAC (Hardwire)
Load Range	0-100%
Regulation	$\pm 3\%$ for line/load changes
Attenuation	120 db Common Mode Noise 60 db Transverse Mode Noise
Audible Noise	NEMA ST 20-2014

Product Selection Guide

Problem Encountered	Shielded Isolation Transformer	True-Power	SPS	UPS
Power Failure	—	—	X	X
Widely Varying Source Voltage	—	X	—	X
Brown Outs	—	X	X	X
Switching Of Power Factor Correction Capacitors	X	X	X	X
Distorted Wave Shape Due To Harmonic Content	—	X	—	X
Common-Mode Transients	X	X	—	X
Transverse-Mode Transients	—	X	X	X
Voltage Spikes Due To Proximity Of Welding Equipment Or Certain Medical Diagnostic Equipment	X	X	X	X
Line Distortion Due To Noise Generated From Occasional Lightning Strikes	X	X	X	X
Operation Of Computer Storage Devices Such As Floppy Disks Or Winchester Drives Generates Transients	X	X	X	X

HARDWIRED MODELS — CONSTANT VOLTAGE REGULATORS 95-132 X 166-228 X 192-264 X 384-528 VOLT PRIMARY — 120/208/240 VOLT SECONDARY — 1Ø, 60 Hz

kVA Size	Catalog Number	APPROXIMATE DIMENSIONS (Inches)(Cm.) ③									Mounting Type (Wall)(Floor)	Weight (Lbs.)(Kg.)	Figure	Wiring Diagrams
		A	B	C	D	E	F	G	H	J				
0.25	T169430	15.50	6.30	5.80	5.63	8.13	9.30	1.2	.41 x .81	5.00	F&W	37	II	16
		(39.4)	(16.0)	(14.7)	(14.3)	(20.7)	(23.6)	(3.0)	(1.0 x 2.1)	(12.7)				
0.35	T169431	17.00	7.00	7.30	5.63	8.13	9.40	2.3	.41 x .81	6.50	F&W	51	II	16
		(43.2)	(17.8)	(18.5)	(14.3)	(20.7)	(23.9)	(5.8)	(1.0 x 2.1)	(16.5)				
0.50	T169432	17.00	7.00	7.30	5.63	8.13	9.40	2.3	.41 x .81	6.50	F&W	53	II	16
		(43.2)	(17.8)	(18.5)	(14.3)	(20.7)	(23.9)	(5.8)	(1.0 x 2.1)	(16.5)				
0.75	T169433	17.00	7.00	7.30	5.63	8.13	9.40	2.3	.41 x .81	6.50	F&W	65	II	16
		(43.2)	(17.8)	(18.5)	(14.3)	(20.7)	(23.9)	(5.8)	(1.0 x 2.1)	(16.5)				
1.00	T169434	18.50	6.50	8.55	5.63	8.13	9.50	2.3	.41 x .81	7.75	F&W	82	II	16
		(47.0)	(16.5)	(21.7)	(14.3)	(20.7)	(24.1)	(5.8)	(1.0 x 2.1)	(19.7)				
2.00	T169435	19.00	10.50	10.20	6.00	12.00	13.25	2.3	.44 x .63	9.40	F&W	142	III	16
		(48.3)	(26.7)	(25.9)	(15.2)	(30.5)	(33.7)	(5.8)	(1.1 x 1.6)	(23.9)				
3.00	T169436	19.00	10.50	10.20	6.00	12.00	13.25	2.3	.44 x .63	9.40	F&W	176	III	16
		(48.3)	(26.7)	(25.9)	(15.2)	(30.5)	(33.7)	(5.8)	(1.1 x 1.6)	(23.9)				
5.00	T169437	22.00	12.54	12.20	6.00	14.00	15.25	2.3	.44 x .63	11.40	F&W	295	III	16
		(55.9)	(31.9)	(31.0)	(15.2)	(35.6)	(38.7)	(5.8)	(1.1 x 1.6)	(29.0)				
10.00	T169438	23.06	27.31	24.06	18.00	25.50	—	—	.56	—	F&W①	605	IV	16
		(58.6)	(69.4)	(61.1)	(45.7)	(64.8)			(1.4)					
15.00	T169439	23.06	40.13	24.06	18.00	38.31	—	—	.56	—	F	880	IV	16
		(58.6)	(101.9)	(61.1)	(45.7)	(97.3)			(1.4)					

① Wall mounting brackets required for this size. Refer to Page 10.
③ Dimensions not suitable for construction. Contact factory.

Wiring Diagrams begin on page 5.



CONSTANT VOLTAGE REGULATORS DIMENSIONAL DRAWINGS

Figure II and III

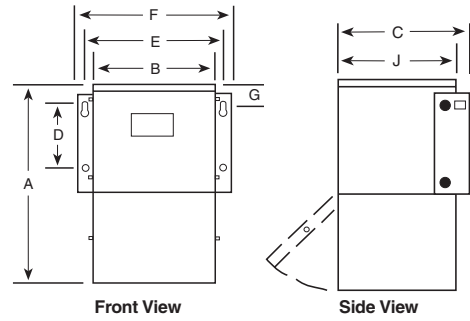
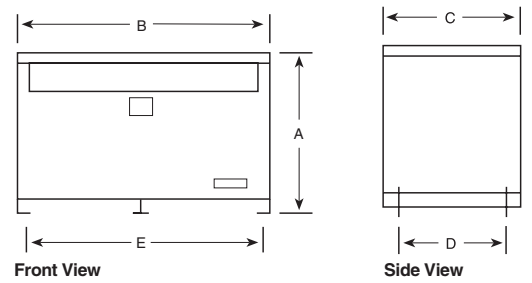
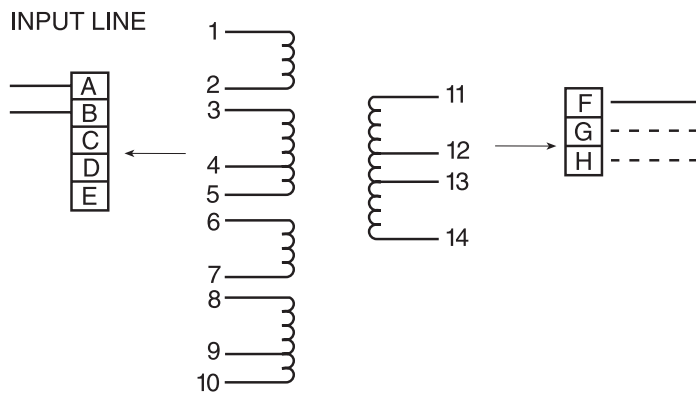


Figure IV



Power Line Conditioner



Input Connections Insulate

Volts	Connect	Isolate
120	1, 3, 6, 8 to A 2, 5, 7, 10 to B	4, 9
208	1, 6 to A 4, 9 to B 2, 3 to C 7, 8 to D	5, 10
240	1, 6 to A 5, 10 to B 2, 3 to C 7, 8 to D	4, 9
480	1 to A 10 to B 2, 3 to C 5, 6 to D 7, 8 to E	4, 9

Output Connections

Volts	Connect	Output Lines To
120	11 to F 12 to G 14 to H	F, G
208	11 to F 12 to G 14 to H	F, G, H
240	11 to F 12 to G 13 to H	F, H
480	11 to F 12 to G 14 to H	F, H

NOTE: To prevent externally shorting, all leads marked "INSULATE" must be individually capped with wire nuts or equivalent. Insulate leads individually!

HARD-WIRED SPD

Hubbell hard-wired SPDs are multi-phase surge protective devices and noise filters in compact and affordable packages. The compact designs allow surge suppression to be installed adjacent to power panels or directly on sensitive equipment in harsh electrical conditions.

Hubbell hard-wired systems are versatile and compact surge protective devices designed to provide high-quality surge suppression for a wide variety of commercial, industrial or institutional applications. Hubbell hard-wired devices can be used in a network of surge suppression applications or as a stand-alone surge suppressor.

Superior Performance

Hubbell hard-wired SPDs utilize a high-energy suppression circuit that provides from 50,000 to 100,000 peak amps of surge current rating per phase. Hubbell hard-wired SPDs contain a suppression circuit that not only provides additional transient suppression, but also noise filtration. Hard-wired SPD units provide reliable operation by incorporating the latest engineering developments. Each MOV is individually fused and the products are contained in a NEMA Type 4 housing. Hubbell hard-wired SPDs incorporate the latest overvoltage technology innovations. The hard-wired series provides superior overvoltage withstand capability for systems with unstable power without compromising transient clamping performance.

Easy Installation

Hubbell hard-wired SPDs mount directly to the panel through a nipped connection. They allow easymounting near the circuit breaker in order to reduce lead lengths and improve surge suppression.

10-year Warranty

Hubbell hard-wired SPDs have a 10-year warranty.

Features

- NEMA 4X Enclosure
- Overvoltage technology
- EMI/RFI Noise Rejection
- LED Status Indication
- Suppression Status Alarm
- Coordinated Fuse Technology

Advantages

- Allows installation in outdoor applications
- Superior overvoltage withstand and surge suppression
- Increased transient suppression
- Provides visual indication of the suppressor status
- Provides immediate alarm if suppression is ever damaged
- Thermal fuse capable of passing extreme surge currents

Benefits

- Provides surge suppression to vulnerable equipment powered from weather-exposed panels
- Longer product life and increased tolerance to unstable power conditions
- Improves surge suppression to the equipment
- Allows immediate response if suppressor is damaged
- Warns if operating with reduced or without surge suppression
- Provides premium surge suppression while managing thermal effects from MOV end of life

Section 9 | Selection Chart

HARD-WIRED SPD CONT.

Performance

- Short Circuit Current Rating 200 kA
- Fusing Individually fused MOVs
- Filtering EM/RFI Noise Rejection Yes

Mechanical Description

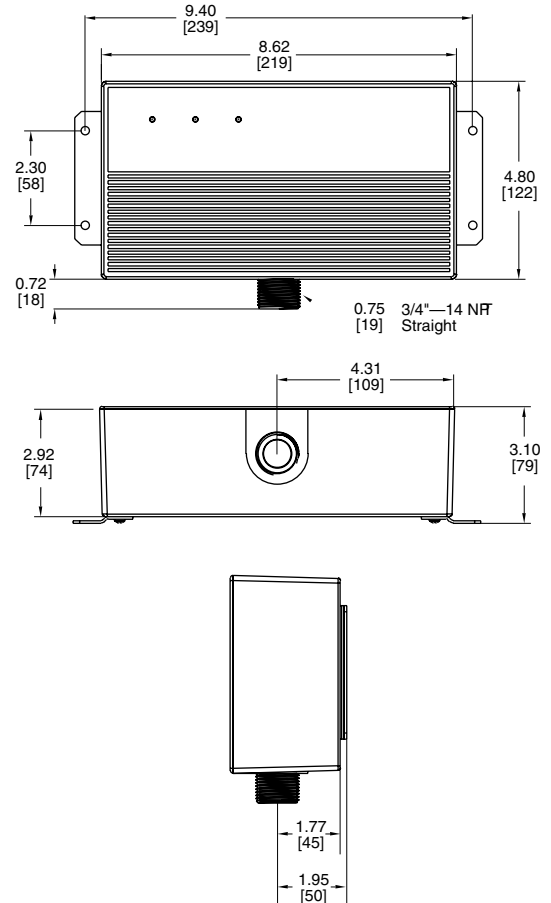
- Dimensions 8.62" x 4.80" x 2.92"
- Housing Rating NEMA 4X
- Connection Method #10 AWG
- Mounting Method/Circuit Type Parallel
- Thermal Fusing Yes
- Operating Frequency 50/60 Hz
- Operating Altitude Sea Level-12,000' (3,658 m)
- Storage Temperature -40° F to +149° F (-40° C to +65° C)
- Operating Temperature -4° F to +160° F (-20° C to +71° C)

Diagnostics

- Green status LED, audible alarm, dry contacts

Listings and Performance

- cULus 1449 3rd edition Type 2 SPD, UL 1283 (Wye products only), CSA C22.2 No. 8-M1986



Hard-Wired SPD

Model Number	Surge Current	Configuration	Voltage	MCOV	I _n	VPR			
						L-N	L-G	L-L	N-G
HBL3W100C	100kA	1 Ø, 3-wire+G	120V/240	150V	20kA	900V	1200V	1500V	700V
HBL4W100C	100kA	3 Ø, Wye, 4-wire+G	120V/208Y ①	150V	20kA	900V	1200V	1500V	700V
HBL8W100C	100kA	3 Ø, Wye, 4-wire+G	277V/480Y ②	320V	20kA	1200V	2000V	2500V	1000V
HBL9W100C	100kA	3 Ø, Delta, 3-wire	480V Delta	840V	20kA	N/A	N/A	3000V	N/A

① 120/208Y series also applies to the following voltage 127/220Y

② 277/480Y series also applies to the following voltages 220/380Y, 230/400Y, and 240/415Y



TYPE 1 SPD'S

Hubbell brand Spikeshield Type 1 Surge Protective Devices (SPDs) are compact and affordable arresters available in either single or multi-phase models. Spikeshield SPDs offer a simple means to bring down initial surges to manageable levels in a cascaded SPD system. Their compact design allows surge suppression to be installed adjacent to power panels or directly on sensitive equipment.

Type 1 SPDs are versatile and compact devices designed to provide high-quality surge suppression for a wide variety of commercial, industrial or institutional applications. Hubbell brand Spikeshield Type 1 SPDs can be used in a cascaded network of suppression applications or as stand-alone surge suppression. Type 1 SPDs can also be installed on the electric meter, on well pumps or on other sensitive electronic equipment. NEMA Type 4X rated housing allows installations outdoors.

Superior Performance

Spikeshield Type 1 SPDs utilize high-energy suppression circuitry that can be located at any point in the electrical system. They have the flexibility to be used with or without an Overcurrent Protection Device (OCPD).

Type 1 SPDs provide surge suppression for equipment from severe transient activity. Each MOV is individually fused and the products are enclosed in a NEMA Type 4X housing suitable for installing outdoors or in other harsh environments.

Easy Installation

Spikeshield Type 1 SPDs are some of the most versatile, yet compact surge protective devices available on the market today. This compact package can be mounted on an electrical panel, meter socket, or inside electrical control cabinets.

10-year Warranty

The HBL3W50 warranty is 10 years. The HBLSDSA36 warranty is 2 years. The HBL4SA40, HBL8SA40 warranty is 2 years.

Features

- NEMA 4X Enclosure
- Compact Design
- Designed for Type 1 Applications
- LED Status Indication
- Coordinated Fuse Technology

Advantages

- Allows installation in outdoor applications
- Easily mounts even in restricted spaces
- Can be installed with or without an Overcurrent Protective Device (OCPD)
- Provides visual indication of the suppressor status
- Fuses capable of passing extreme surge currents

Benefits

- Provides surge suppression to vulnerable equipment powered from weather exposed panels
- Transient suppression is located at the most efficient connection point
- Improves surge suppression to the equipment
- Allows for flexibility in installation locations
- Allows immediate indication if suppressor requires replacement
- Provides premium surge suppression while managing thermal effects from MOV end of life

Mechanical Description

- Housing Rating NEMA 4X
- Connection Method
 - HBL3W50* #12 AWG
 - HBLSDSA36* #14 AWG
 - HBL4SA40
 - HBL8SA40 #12 AWG
- Mounting Method/Circuit Type Close Nipped

Section 9 | Dimensions

- Thermal Fusing
- Operating Frequency 50/60 Hz
- Operating Altitude Sea Level-12,000' (3,658 m)
- Storage Temperature -40° F to +149° F (-40° C to +65° C)
- Operating Temperature -40° F to +149° F (-40° C to +65° C)

Diagnostics

- Green status LED

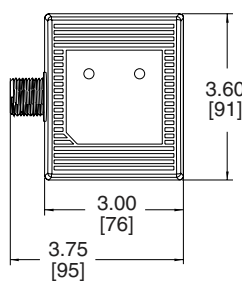
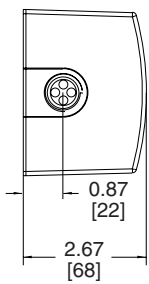
Listings and Performance

- *cULus Listed to 1449 Type 1 SPD, CSA C22.2 No. 8-M1986, C233.1-87

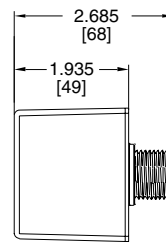
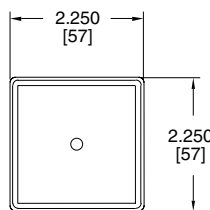
**cULus Listed per UL 1449 Type 1 SPD, CSA C22.2 No. 269.1-14



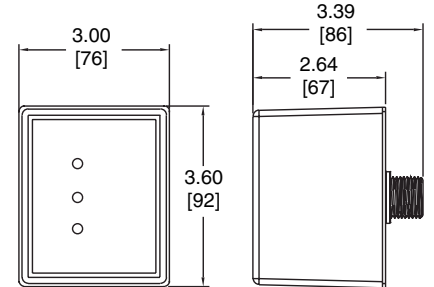
HBL3W50



HBLSDSA36



HBL4SA40, HBL5SA40, HBL8SA40, HBL9SA40, HBL10SA40 and HBL11SA40



HBL3W50

The HBL3W50 series provide high-quality surge suppression in a compact and versatile package. This product is ideal for panel builders as well as manufacturers and integrators of instrumentation cabinets for industrial, commercial, and residential applications for single-phase power systems.

HBL3W50 SPDs incorporate the latest overvoltage technology innovations. The series provides superior overvoltage withstand for systems with unstable power without compromising transient clamping performance.

HBL3W50

Model Number	Surge Current	Configuration	Voltage	MCOV	SCCR	I _n	L-N	VPR	
								L-G	L-L
HBL3W50	50kA	1 Ø, 3-wire+G, side mounted	120V/240	150V L-N, L-G 300V L-L	25kA	10kA	700V	800V	1200V

HBLSDSA36

The HBLSDSA36 Type 1 SPD is designed and listed for indoor or outdoor installation and surge suppression for single-phase three-wire 120/240 Vac 60 Hz electrical services. Two HBLSDSA36 Type 1 SPDs can be installed to provide surge suppression on 120/208V three-phase four-wire services.

HBLSDSA36

Model Number	Surge Current	Configuration	Voltage	MCOV	SCCR	I _n	L-N	VPR		
								L-G	L-L	N-G
HBLSDSA36	36kA	1 Ø, 3-wire, back mounted	120V/240	150V	22kA	10kA	700V	N/A	1200V	N/A

HBL4SA40, HBL8SA40

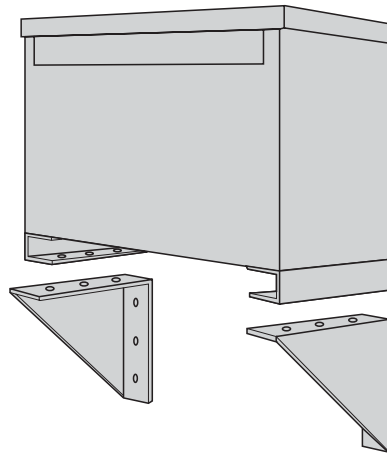
The HBL4SA40, HBL8SA40 Type 1 SPD is designed and listed for indoor or outdoor installation and surge suppression of three-phase grounded electrical services from 120/208 Vac up to 480 Vac line to line and is used extensively in service entrance panels to provide an efficient and economical means of surge suppression.

HBL4SA40, HBL8SA40

Model Number	Modes of Protection	Surge Current per Phase	Configuration	Voltage	MCOV	SCCR	I _n	L-N	VPR		
									L-G	L-L	N-G
HBL4SA40	6	40kA	3 Ø, 4-wire	208Y/120V ^①	180V L-N 360V L-L	200kA	10kA	700V	N/A	1200V	N/A
HBL8SA40	6	40kA	3 Ø, 4-wire	480Y/277V ^②	420V L-N 840V L-L	200kA	10kA	1500V	N/A	2500V	N/A

^① Applicable voltages: 220Y/127V, 208Y/120V

^② Applicable voltages: 480Y/277V, 415Y/240V, 400Y/230V, 380Y/220V



WALL MOUNTING BRACKET

Catalog Number: PL-79912

Warranty Certificate

Acme Electric 10-Year Limited* Warranty

Acme Electric (Acme) warrants to the original purchaser to correct by repair, replacement or refund of original purchase price, at Acme's option, products manufactured and sold by its Power Distribution Products Division, that may fail in service within the applicable period as set forth below, from the date of manufacture provided however, that conditions of operation have been normal at all times, and that the equipment has not been subjected to abnormal stress from such causes as incorrect primary voltage or frequency, improper ventilation or improper use. This warranty is made on the condition that prompt notice of defect is given to Acme in writing within the warranty period, and that Acme's inspection reveals to its satisfaction that the original purchaser's claim is valid under the terms of this warranty. Acme's obligation under this warranty, which is in lieu of all other warranties, express or implied, including the implied warranty of fitness for a particular purpose and merchantability, is limited to replacing or repairing defective products or parts, free of charge, provided they are returned to the factory, or refund of original purchase price, at Acme's option. However, purchased components (except for timers and photocells used in low voltage lighting power supplies) including but not limited to capacitors, circuit breakers, terminal blocks, batteries, fuses and tubes shall not be covered under this warranty. Repairs or replacement deliveries shall not interrupt or prolong the term of this warranty. Acme will not be liable for any special, indirect, consequential or incidental damages, including, without limitation, from loss of use, data, function or profits deriving out of or in connection with the use or performance of the product and shall have no liability for payment of any other damages whether in an action of contract, strict liability or tort. The remedy provided herein states Acme Electric's entire liability and buyer's sole and exclusive remedy here under. Rights may vary in certain states.

***Warranty Period:**

Standard Catalog Transformers — 10-year limited; Medium Voltage Transformer — 3-year limited, Custom products — 1 year.



HBL3W100C _____	7	HBL9W100C _____	7	T169434 _____	4
HBL3W50 _____	9	HBLSDSA36 _____	10	T169435 _____	4
HBL4SA40 _____	10	T169430 _____	4	T169436 _____	4
HBL4W100C _____	7	T169431 _____	4	T169437 _____	4
HBL8SA40 _____	10	T169432 _____	4	T169438 _____	4
HBL8W100C _____	7	T169433 _____	4	T169439 _____	4



*Our history is strong,
engaging and dedicated...
just like our people.*



The Acme Electric Legacy

Acme Electric provides power quality and conversion equipment to OEM, industrial and commercial markets. Founded in 1917 in Cleveland, Ohio as the Acme Electric and Machine Company, the company has a legacy of providing innovative electrical products. Acme is now part of Hubbell Incorporated, one of the largest electrical manufacturers in North America. Hubbell's history of innovation extends back to 1888 and the invention of the pull chain light switch and the electric plug.

Acme's original product line of motor-driven battery chargers, electrical appliances and electrical generators has transformed to a diversified mix of high-quality low voltage, medium voltage and 3 phase transformers and power supplies.

Learn more about us at www.hubbell.com/acmeelectric/en



**COMMERCIAL
CONSTRUCTION**

A Division of Hubbell Incorporated (Delaware)

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