

# HPS Sentinel<sup>®</sup>

## Energy Efficient Distribution Transformers

### BENEFITS

- HPS Sentinel G, K, and H product lines meet the efficiency standards outlined in DOE 10 CFR Part 431 offering significant energy savings to our customers and positive societal/environmental benefits.
- Standard Type 3R enclosure suitable for indoor or outdoor applications.
- For our customers, higher efficiency translates into:
  - Increased profitability due to lower operating costs
  - Decreased cost of ownership over the lifetime of the transformer
  - Less air conditioning cost due to lower heat emissions
- Expanded catalog low voltage product - up to 1000kVA
- Standard 10kV BIL rating on DOE 2016 low voltage distribution transformer products providing increased reliability and protection against critical equipment failure (including voltage spikes and other line transients).
- Standard integral floor and wall mounting brackets up to 45kVA allow for faster installation.
- All units utilize a uniform 220°C insulation system with a 80°C, 115°C, or 150°C temperature rise.
- Industry leading design solutions, technology and materials continue the legacy of quality and reliability in all HPS products.



### FEATURES

#### Core & Coil Construction:

- Manufactured from quality non-aging, cold rolled, silicon steel laminations using state-of-the-art equipment
- Cores are precision cut to close tolerances which eliminates burrs and improves performance
- Core is coated to prevent the ingress of moisture
- Precision wound with copper or aluminum conductors that are electrically balanced to minimize axial forces during short-circuit conditions
- Robust interface between core & coils for better short circuit performance

**Conductor material:** Copper or Aluminum

**Temperature rise:** 150°C typical (low rise options avail.)

**Insulation system:** 220°C



Standard type 3R enclosure on all low voltage HPS transformers



Integrated wall mounting brackets for added convenience at no extra cost



Expanded neutral bar for multiple customer connections

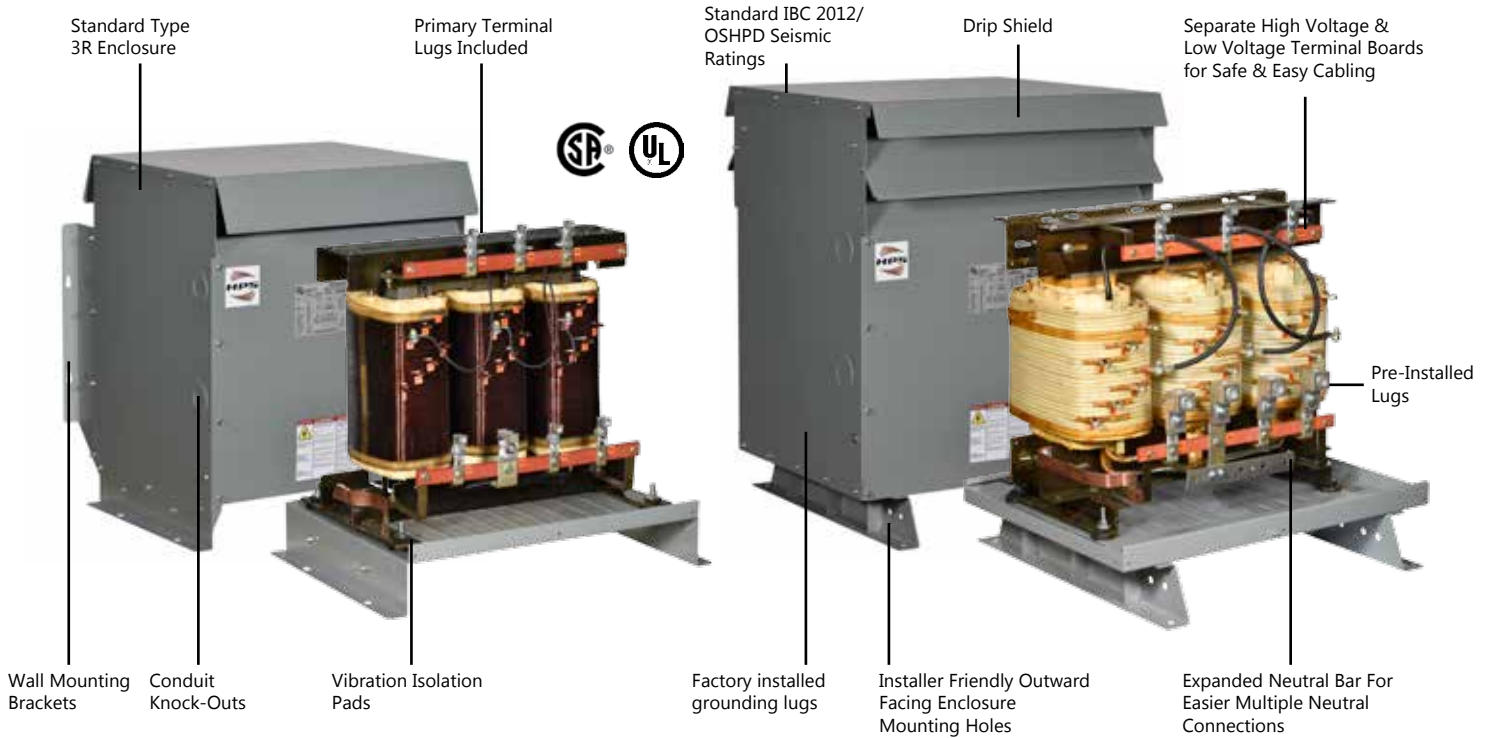
## Installation made fast & easy!

Tired of spending extra money on labor and material to install optional transformer features? Purchasing an HPS Sentinel Transformer will save you all these additional costs. HPS Sentinel has these optional features pre-installed as part of our standard product line.



## Testing

All HPS transformers are tested at HPS prior to shipment. They must meet very stringent quality criteria prior to release.



Factory installed main grounding lugs



Bottom cable entry area where applicable



Offset outward facing floor installation holes for easy power tool access

# HPS Sentinel®

## Energy Efficient Distribution Transformers

### Specifications & Accessories - Copper or Aluminum



**15 to 45 kVA**



**75 to 150 kVA**



**225 to 1000 kVA**

### STANDARD SPECIFICATIONS

<b>kVA:</b>	15-1000kVA	<b>Termination:</b>	Front accessible separate high and low voltage terminals; connectors suitable for aluminum and copper are provided for easy cable installation.
<b>UL Listed:</b>	File: E112313	<b>Conduit Entry:</b>	Side knock-outs standard on all units; Bottom entry provision (exceptions apply)
<b>CSA Certified:</b>	File: LR3902	<b>Impedance:</b>	Typically 3.5% to 6.5%
<b>Frequency:</b>	60 Hz (optional 50/60 Hz available)	<b>Mounting:</b>	Floor or wall/ceiling mounting available. Refer to selection tables for details.
<b>Insulation System:</b>	220°C (150°C rise) (optional 115°C & 80°C rise available)	<b>Seismic:</b>	Seismically qualified according to the International Building Code (IBC) 2012, and the American Society of Civil Engineers ASCE 7-10 specifications, with the following design parameters: Spectral acceleration: $S_{DS} \leq 2.0$ g Importance factor: $I_p = 1.5$ Attachment/height ratio: $z/h = 1.0$ " O.S.H.P.D. California Certified
<b>BIL Rating:</b>	10 kV (on all 3PH low voltage products)	<b>Sound Level:</b>	Meets NEMA ST-20 standards (optional low noise units available)
<b>Enclosure Type:</b>	Heavy duty ventilated Type 3R standard (optional Type 4, 4X (stainless steel) & 12)	<b>Warranty:</b>	10 years
<b>Enclosure Finish:</b>	ANSI 61 Grey, UL50		
<b>Neutral:</b>	Neutral terminal for field connection (on applicable units)		
<b>Standard Primary Taps:</b>	Refer to wiring diagrams for details		
<b>Optional Accessories:</b>	<ul style="list-style-type: none"> <li>• Thermal sensing &amp; indication</li> <li>• Thermocouples</li> <li>• Thermometers (analog/digital)</li> <li>• Thermostat alarm / trip (N.O. /N.C. contacts)</li> <li>• Electrostatic shielding</li> <li>• Rated to handle current harmonics [K4] [K9] [K13]</li> <li>• Strip heater (space heater to prevent condensation)</li> <li>• Surge protection devices</li> <li>• Type 3R or 4X available in stainless steel</li> <li>• Type 3R enhanced with baffling for horizontal blowing rain and snow</li> </ul>		

## HPS Sentinel Part Number Guide

Example

Family	Appl. Type	Generation	Phase	kVA				Pri. Volt.	Sec. Volt.	K Rating	Winding Material/ Electrostatic Shield	Temp. Rise & Insul. Class	Enclosure	Sound Level	Special Duty
				0	0	4	5								
S	G	3	A	0	0	4	5	K	B	0	K	F	K	3	M

### Family:

S - Sentinel

### Type:

G - General  
K - K Rated  
H - Harmonic Mitigation

### Generation:

2 - current designs  
3 - current designs

### Phase (Pri-Sec):<sup>1</sup>

A - 3PH Delta-Wye-N  
B - 3PH Wye-N-Delta  
C - 3PH Delta-Delta/CT<sup>2</sup>  
D - 3PH Delta-Delta  
Y - 3PH Wye-N-Wye-N  
T - 3PH Delta Zig Zag- 0° PH Shift  
U - 3PH Wye-N Zig Zag- -30°PH Shift  
L - 1PH Single-Dual  
N - 1PH Dual-Dual  
M - 1PH Multiple-Dual

### kVA:

kVA Rating

### Primary Voltage:

1PH	3PH
B 208	208D, 208Y/120
D 240	240D
F 277	
H 416	416D
K 480	480D, 480Y/277
L 240x480	
P 600	600D, 600Y/347
X multiple	

### Secondary Voltage:

1PH	3PH
B 208	208D or 208Y/120
D 240	240D, 240D/120CT or 240Y/139
E 120/240	
K 480	480D or 480Y/277
P 600	600D or 600Y/347
Y	380Y/220V w taps at 400Y, 416Y and 430Y

### K Rating:

0 = None\*  
4 = K4  
9 = K9  
3 = K13  
2 = K20 (max. 300 kVA)

### Winding Material/Electrostatic Shield:

A - Aluminum\*  
S - AL + Shield  
C - Copper  
K - CU + Shield

### Temperature Rise at standard 220°C

#### Insulation Class:

B - 80°C  
F - 115°C  
G - 130°C  
H - 150°C\*

### Enclosure:

A - Type 1	F - Type 4 <sup>3</sup>
B - Type 2	G - Type 4X (304SS) <sup>3</sup>
C - Type 3R*	H - Type 4X (316SS) <sup>3</sup>
D - Type 3RE	K - Type 12 <sup>3</sup>
E - Type 3RX	X - None (Core & Coil)

### Sound Level:

0 = Standard\*  
3 = -3 dB  
5 = -5 dB  
8 = -8 dB

### Special Duty:

None = Default  
D = Land Drilling  
M = Marine Duty

<sup>1</sup> Standard configurations winding vector per UL 1560

<sup>2</sup> Available standard only with 240D/120CT secondaries

<sup>3</sup> Outside of DOE scope - non energy efficient product provided unless otherwise specified

\* Default options -ignore if all following characters are default values.

## Support & Resources

No other transformer company can offer our service and quality in a full range of products.

### Transformer Efficiency Calculator



The HPS Efficiency Calculator allows you to determine how much money and energy you can save by switching to a HPS Sentinel G, K, or H transformer. Visit the "Online Tools" area of the HPS website.

### Extensive Inventory



We carry a complete inventory of Distribution Transformers throughout North America to quickly meet your needs.

### Current Calculator



Calculate the Amps, Volts, or kVA of a transformer. Visit the "Online Tools" area of the HPS website.

### Live Telephone Technical Support



Our inside sales team is available to quickly answer your questions. They are technically trained and able to answer most questions right over the phone.

### Fast On-Site Response



On-site technicians are available to assist with any technical problems or issues that cannot be resolved over the phone.

### Easy-To-Access Installation Manuals



All transformer installation manuals are conveniently located on our website so you can access them anywhere, anytime.

# Selection Tables

## HPS Sentinel G

Energy Efficient General Purpose Distribution



### ALUMINUM WOUND, THREE PHASE

240 Delta Primary Volts

480Y/277 Secondary Volts

60 Hz

kVA	Catalog Number	Case Style	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram
			Width	Depth	Height			
15	<b>SG3A0015DK</b>	DH1	21.5	20.1	22.0	210	F or W/C	SCD 53
30	<b>SG3A0030DK</b>	DH2	25.8	23.8	28.8	310	F or W/C	SCD 53
45	<b>SG3A0045DK</b>	DH2	25.8	23.8	28.8	380	F or W/C	SCD 53
75	<b>SG3A0075DK</b>	DH3	28.3	27.0	36.0	510	F (Opt W/C)	SCD 53
112.5	<b>SG3A0112DK</b>	DH3	28.3	27.0	36.0	680	F (Opt W/C)	SCD 53
150	<b>SG3A0150DK</b>	DH4	31.5	29.5	44.5	870	F	SCD 53
225	<b>SG3A0225DK</b>	DH5	38.0	34.0	52.0	1350	F	SCD 56
300	<b>SG3A0300DK</b>	DH5	38.0	34.0	52.0	1800	F	SCD 56
500	<b>SG3A0500DK</b>	DH6	49.0	42.0	64.0	2750	F	SCD 23A
750	<b>SG3A0750DK</b>	DH7	54.0	47.0	72.0	4100	F	SCD 61
1000	<b>SG3A1000DK</b>	DH8	60.0	50.0	82.0	5400	F	SCD 61

W/C: Built-in Wall Ceiling Mounting Opt W/C: Wall Ceiling Mounting Kit "DW3" Available OSHPD Certified for Floor Mounting Only

480 Delta Primary Volts

208Y/120 Secondary Volts

60 Hz

kVA	Catalog Number	Case Style	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram
			Width	Depth	Height			
15	<b>SG3A0015KB</b>	DH1	21.5	20.1	22.0	210	F or W/C	SCD 19
30	<b>SG3A0030KB</b>	DH2	25.8	23.8	28.8	310	F or W/C	SCD 19
45	<b>SG3A0045KB</b>	DH2	25.8	23.8	28.8	380	F or W/C	SCD 19
75	<b>SG3A0075KB</b>	DH3	28.3	27.0	36.0	510	F (Opt W/C)	SCD 19
112.5	<b>SG3A0112KB</b>	DH3	28.3	27.0	36.0	680	F (Opt W/C)	SCD 19
150	<b>SG3A0150KB</b>	DH4	31.5	29.5	44.5	870	F	SCD 19
225	<b>SG3A0225KB</b>	DH5	38.0	34.0	52.0	1350	F	SCD 19
300	<b>SG3A0300KB</b>	DH5	38.0	34.0	52.0	1800	F	SCD 19
500	<b>SG3A0500KB</b>	DH6	49.0	42.0	64.0	2750	F	SCD 20
750	<b>SG3A0750KB</b>	DH7	54.0	47.0	72.0	4100	F	SCD 20
1000	<b>SG3A1000KB</b>	DH8	60.0	50.0	82.0	5400	F	SCD 10

W/C: Built-in Wall Ceiling Mounting Opt W/C: Wall Ceiling Mounting Kit "DW3" Available OSHPD Certified for Floor Mounting Only

480 Delta Primary Volts

240 Delta/120 CT Secondary Volts

60 Hz

kVA	Catalog Number	Case Style	Approx. Dimensions (Inches)			Approx. Weight (Lbs.)	Mtg Type W - Wall F - Floor	Wiring Diagram
			Width	Depth	Height			
15	<b>SG3C0015KD</b>	DH1	21.5	20.1	22.0	210	F or W/C	SCD 21
30	<b>SG3C0030KD</b>	DH2	25.8	23.8	28.8	310	F or W/C	SCD 21
45	<b>SG3C0045KD</b>	DH2	25.8	23.8	28.8	380	F or W/C	SCD 21
75	<b>SG3C0075KD</b>	DH3	28.3	27.0	36.0	510	F (Opt W/C)	SCD 21
112.5	<b>SG3C0112KD</b>	DH3	28.3	27.0	36.0	680	F (Opt W/C)	SCD 21
150	<b>SG3C0150KD</b>	DH4	31.5	29.5	44.5	870	F	SCD 21
225	<b>SG3C0225KD</b>	DH5	38.0	34.0	52.0	1350	F	SCD 21
300	<b>SG3C0300KD</b>	DH5	38.0	34.0	52.0	1800	F	SCD 21
500	<b>SG3C0500KD</b>	DH6	49.0	42.0	64.0	2750	F	SCD 22
750	<b>SG3C0750KD</b>	DH7	54.0	47.0	72.0	4100	F	SCD 22
1000	<b>SG3C1000KD</b>	DH8	60.0	50.0	82.0	5400	F	SCD 59

W/C: Built-in Wall Ceiling Mounting Opt W/C: Wall Ceiling Mounting Kit "DW3" Available OSHPD Certified for Floor Mounting Only