

# SUPERBUTE™ JVW-6A

## OUTDOOR VOLTAGE TRANSFORMER

12000V to 24000V, 60Hz  
125-150kV BIL



### APPLICATIONS

Model JVW-6A is a high accuracy voltage transformer designed for outdoor service. This model will meet IEEE C57.13.6 0.15 high accuracy class from OVA through the specified standard burden, from 90% to 110% of the rated voltage and is suitable for operating meters, instruments, relays, and control devices. This model is available in a variety of voltage, ratio and bushing types as outlined in the unit selection table below. Additional designs are available upon request. Rated Distribution Class with lighter burden and thermal rating for more efficient application to solid-state metering and other modern relay and control power installations.

### FEATURES

- Thermal Rating: 750VA (55°C rise above 30°C)
- Weight: 105lbs (unit), 120lbs (shipping)
- Dimensions: 18.25" (h) x 14.25" (w) x 13.19" (d)
- Creep Distance: 21" [533.4mm]
- Strike Distance: 16.39" [416.3mm]
- Insulation: HY-BUTE 60™ Butyl Rubber
- Insulation Class: 125-150kV BIL, Outdoor
- Primary Winding Style: Lattice-Type
- Design Standard: IEEE C57.13
- Measurement Canada Approval: AE-2044

### UNIT SELECTION

RATED PRIMARY VOLTAGE	RATIO	IEEE ACCURACY CLASS, 60Hz BURDEN <sup>1</sup>	CATALOG NUMBER	
			(125kV BIL)	(150KV BIL)
<b>SINGLE-BUSHING<sup>2</sup></b>				
12000/20780GY	100:1	0.15 X, 0.3 Y	766x032001	766x036001
14400/24940GY	120:1	0.15 X, 0.3 Y	766x032002	766x036002
<b>DOUBLE-BUSHING<sup>3</sup></b>				
12000/20780Y	100:1	0.15 X, 0.3 Y	766x032008	--
14400/24940Y	120:1	0.15 X, 0.3 Y	766x032006	--
18000/18000Y	150:1	0.15 X, 0.3 Y	766x032003	--
24000/24000Y	200:1	0.15 X, 0.3 Y	766x032004	--

1. Voltage transformers of this type are available for use in 50Hz applications for many ratings. However, IEEE C57.13 to which these transformers were designed and tested to does not apply to 50Hz. When ordering voltage transformers for 50Hz applications, provide an accuracy specification including Burden VA and Power Factor. If not specified, the transformer(s) will be tested per standard 60Hz test burdens.
2. Single bushing voltage transformers are suitable for application to grounded systems, for operation line-to-ground only. They will operate without damage connected line-to-ground at 1.40 times the transformer-rated voltage for one minute. If it should become necessary to apply these grounded units to an ungrounded system, please contact GE for application analysis.
3. Double bushing voltage transformers are suitable for operating line-to-line, line-to-ground or line-to neutral at a reduced voltage. The primary voltage under line-to-ground operation is the line-to-line voltage divided by  $\sqrt{3}$ , or approximately 58%. Contact GE for accuracy rating at reduced operating voltage.

## REFERENCE DRAWINGS & ACCESSORIES

### Reference Drawings

- Accuracy Curve at 120 Secondary Volts, 60Hz - 9689241738
- Excitation Curve - 9689241788
- Outline Drawing - 9930950

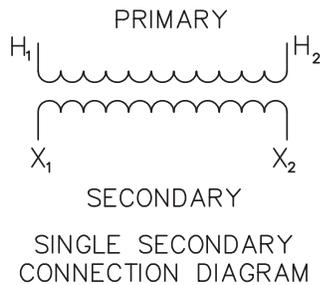
### Accessories

- "L" Mounting Brackets - 8944634002
- Channel Bracket - 5466227001
- Suspensions Hooks - 894463001
- Secondary Conduit Box - 9689897001

## SELECTION GUIDE

PRODUCT CLASS	8.7KV	15KV	25KV	35KV	46KV	69KV
STATION CLASS	JVW4A	JVW5A	JVS150A	JVS200A	JVS250A	JVS350A
			JVT150A	JVT200A	JVT250A	JVS350A
BIL	75kV BIL	110kV BIL	150kV BIL	200kV BIL	250kV BIL	350kV BIL
Accuracy, kVA Rating	0.15Y, 2kVA	0.15Y, 2kVA	0.15Z, 3kVA	0.15Z, 3kVA	0.15Z, 4.5-5kVA	0.15Z, 4.5-5kVA
Creep Distance	20.4" Creep	20.4" Creep	27-27.5" Creep	35-36" Creep	48-50" Creep	64-66" Creep
Net Weight	105lbs	105lbs	225-230lbs	235-240lbs	420-520lbs	430-560lbs
DISTRIBUTION CLASS			JVW6A	JVW7A		
BIL			125-150kV BIL	150-200kV BIL		
Accuracy, kVA Rating			0.15X, 0.75kVA	0.15X, 0.75kVA		
Creep Distance			21" Creep	26.5" Creep		
Net Weight			105lbs	140lbs		

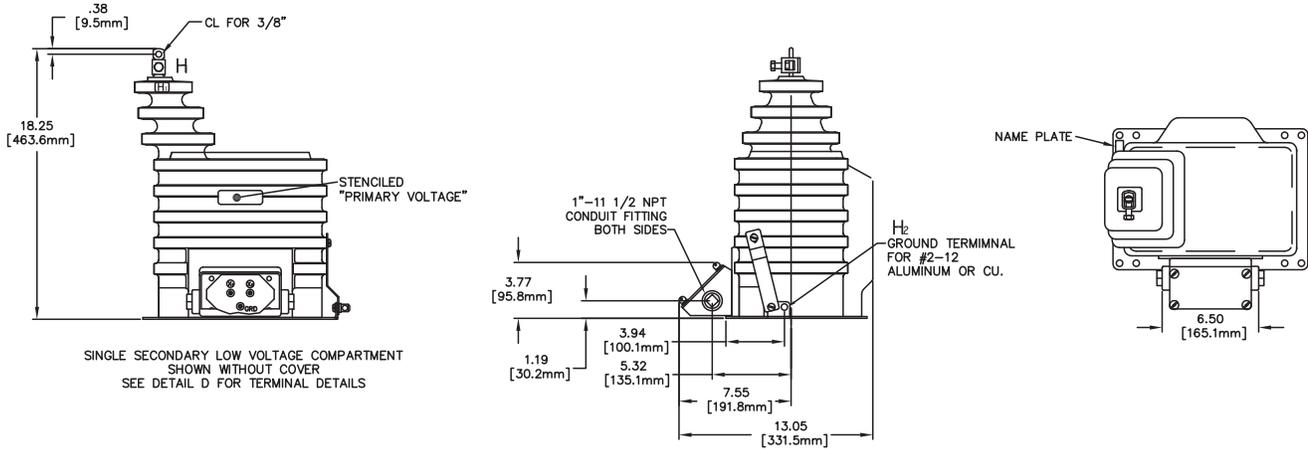
## WIRING DIAGRAMS



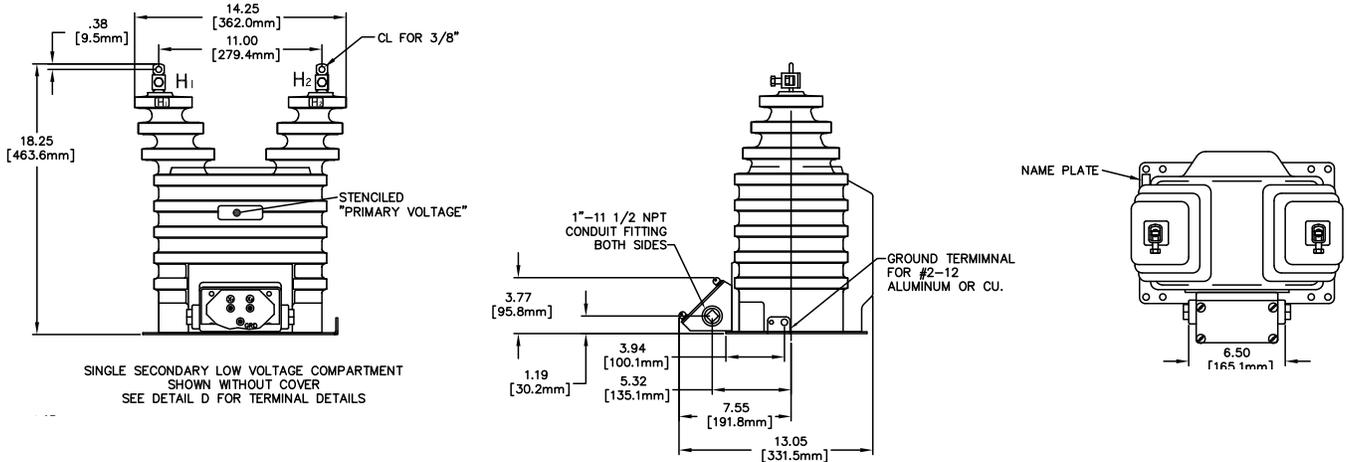
## TYPICAL NAMEPLATE

	Voltage Transformer	Type	Ratio	M&S# 434-780-001
	Bil 125 kV 60 Hz 750 VA @ 30°C Amb Pri Volts 14400 Acc Cl @ 60 Hz 0.3 W,X,M,Y	JVW-6	120:1	
Caution: Read GEH-230		Cat. 766X031781	Ser. 1234567	Mfd. 0711

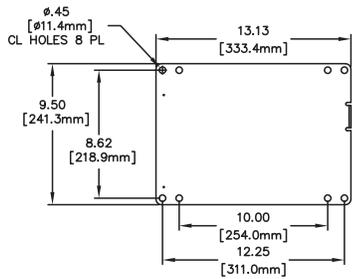
### SINGLE BUSHING DIMENSION DRAWING



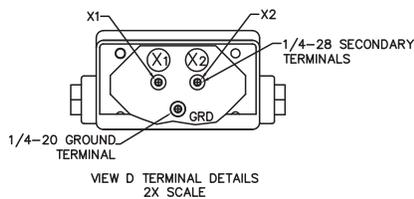
### TWO BUSHING DIMENSION DRAWING



### MOUNTING PLATE DRAWING



### SECONDARY TERMINAL CONFIGURATION



## CONSTRUCTION DETAILS

### Insulation

The transformer design is constructed using GE's premium HY-BUTE 60 molded butyl rubber insulation for the transformer body. First introduced in 1955, GE's unique formulation is non-arc tracking and resistant to heat, chemicals, ozone and ultraviolet. This tough, resilient insulating material has proven to be superior in handling mechanical, electrical and environmental extremes, when compared against other insulation designs such as porcelain, urethane or epoxy.

### Core & Coil

The internal primary windings are constructed with a LATTICE-type primary winding, originally patented by GE. The lattice-type design better distributes voltage stress across the windings, minimizes partial discharge, and maintains higher accuracy across the load range as compared to a traditional layer wound primary design. Outer electrostatic faraday shields act to further distribute steep voltage fronts across the coils. The finished primary coil is precast in epoxy resin prior to being molded in the outer HY-BUTE 60 insulation, for additional dielectric and mechanical strength. The core is made of high-quality silicon steel which is carefully selected, tested and annealed under rigidly controlled factory conditions. Enamel-insulated wire is used in both the primary and secondary coils.

### Primary Terminals

The primary terminals are of the solder-less type. Made of hardened bronze, the terminal is fitted with a hard-copper collar and bronze pressure screw. The collar is semi-captive and may be turned 90-degrees in either direction for vertical or horizontal connection. With the collar in the vertical position, the maximum conductor sizes for copper are 250MCM and aluminum is 4/0. With the collar in the horizontal position, the maximum conductor sizes for copper are 3/0 and aluminum is 2/0. In either position, the minimum conductor size is AWG 10. A clearance hole for a 3/8 inch bolt is provided in the top of the terminal for additional flexibility in making connections. The complete terminal assembly is heavily electroplated with tin so that it is suitable for outdoor use.

### Secondary Terminals

The secondary terminals are located on the insulated surface adjacent to the baseplate. These terminals are clamp-type in fixed, round tin-plated bronze posts, with excellent durability and corrosion resistance. They have a 0.275 inch diameter cross hole to accommodate large or multiple secondary wires. The secondary terminals are molded in the insulation and held in place internally by a terminal block that prevents their rotation.

### Testing

Rigorous GE test requirements meet and exceed IEEE C57.13 routine requirements in order to ensure long term reliability. Test reports are saved electronically and can be e-mailed in various formats upon request.

### Ground Terminal

A ground terminal is provided in the secondary compartment for making an optional connection to one of the secondary terminals. The 1/4-20 roundhead ground terminal is welded in the baseplate bracket, and is furnished with a nut, cup washer, flat washer, and lock washer.

### Conduit Box

A detachable secondary conduit box is provided with the transformer. This die-cast aluminum conduit box is furnished attached to the transformer. Its use permits easy change out of transformers without dismantling rigid conduit structures. The box is provided with two 1 inch threaded conduit hubs on the sides and a 1 inch conduit knockout in the bottom. Each box is furnished complete with aluminum cover, gasket, four sealable cover screws, seal wire, four mounting screws with lock washers, and plastic pipe plugs.

### Polarity

The permanently molded primary polarity markings H1 and H2 and the secondary polarity markings X1 and X2 are situated adjacent to their respective terminals, painted white for better visibility.

### Baseplate and Mounting

The base is made of stainless-steel. A stainless-steel grounding lug is welded to the baseplate and provides a hole for attaching the grounding connector. Mounting holes or slots are located in each corner of the baseplate. Mounting hardware is supplied with the transformer. The transformer can be mounted with the primary terminals in any position—up, down, or horizontal. It can be bolted directly to a cross-arm attached by "U" bolts or suspension hooks, or mounted on double cross-arms, using channel brackets.

### Nameplate

The nameplate is made of stainless-steel and located on the base of the transformer. Information is per IEEE designation, laser-engraved for easy-to-read form. Custom barcoding available upon request.

### Rating Identification

The high-voltage rating is identified by large orange digits located on the insulation surface near the top of the transformer. This provides permanent identification that is clearly visible from a distance, and is resistant to fading and abrasion.

### Maintenance

These transformers require no maintenance other than an occasional cleaning if installed in an area where air contamination is severe.