

Model JVW-3 SUPERBUTE™

Outdoor Voltage Transformer (Double Bushing Style Only)
2,400 V to 4,800 V, 50/60 Hz, 60 kV BIL

Application

Model JVW-3 is designed for outdoor service and suitable for operating meters, instruments, relays, and control devices. JVW-3 is 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. Standard ratios are shown in the table below. Non-standard ratios are also available.

Features

- Thermal Rating: 750 VA (55 °C rise above 30 °C)
- Weight: 44 lbs (unit), 48 lbs (shipping)
- Dimensions: 12.75" (h) x 10.50" (w) x 7.56" (d)
- Creep Distance: 13.5" [342.9 mm]
- Strike Distance: 9" [228.6 mm]
- Insulation: HY-BUTE 60™ Butyl Rubber
- Insulation Class: 60 kV BIL, Outdoor
- Primary Winding Style: Wound-Type
- Design Standard: IEEE C57.13



JVW-3 Unit Selection

Rated Primary Voltage	Ratio	IEEE Accuracy Class, 60 Hz Burden ¹	Catalog Number
Double-Bushing²			
2,400/4,160Y	20:1	0.3 W, X, M, Y	763X030001 ³
4,200/7,280Y	35:1	0.3 W, X, M, Y	763X030002 ³
4,800/8,320Y	40:1	0.3 W, X, M, Y	763X030003 ³
Double-Bushing With Extended Conduit Box			
2,400/4,160Y	20:1	0.3 W, X, M, Y	763X030009
4,200/7,280Y	35:1	0.3 W, X, M, Y	763X030011
4,800/8,320Y	40:1	0.3 W, X, M, Y	763X030012

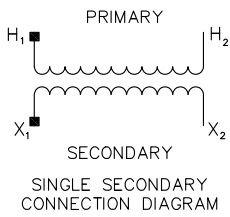
1. Voltage transformers of this type are available for use in 50 Hz applications for many ratings. However, IEEE C57.13 to which these transformers are designed and tested does not apply to 50 Hz. When ordering voltage transformers for 50 Hz applications, provide an accuracy specification including Burden VA and Power Factor. If not specified, the transformer(s) will be tested per standard 60 Hz test burdens.

2. These 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.

3. Measurement Canada Approval: SD-EA.0391



Wiring Diagram



Typical Nameplate



Reference Drawings & Accessories

Reference Drawings

- Accuracy Curve at 120 Secondary Volts, 60Hz - 9689241268
- Excitation Curve - 5454043
- Outline Drawing - 8949945

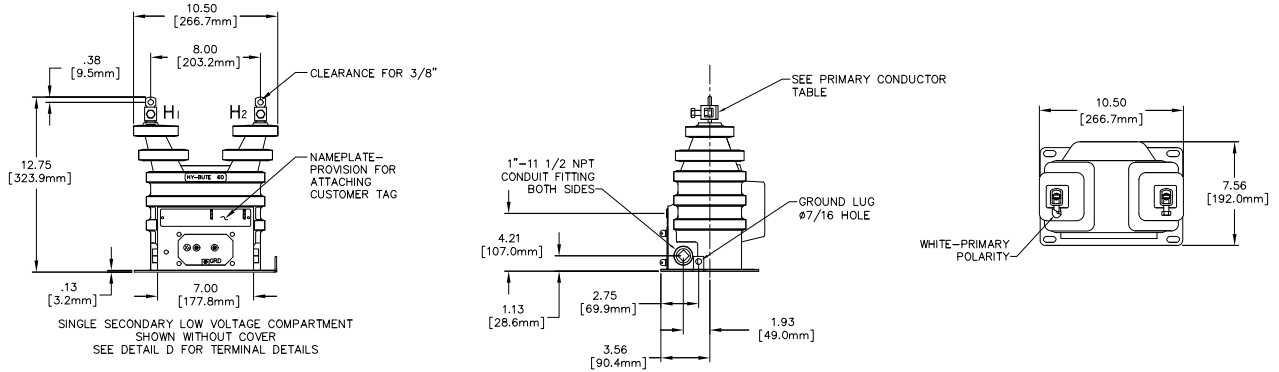
Accessories

- "L" Mounting Brackets - 8944634001
- Auxiliary "L" Mounting Brackets - 8944270001
- Channel Bracket - 5466227001
- Suspensions Hooks - 8944630001
- Secondary Conduit Box - 9689897001

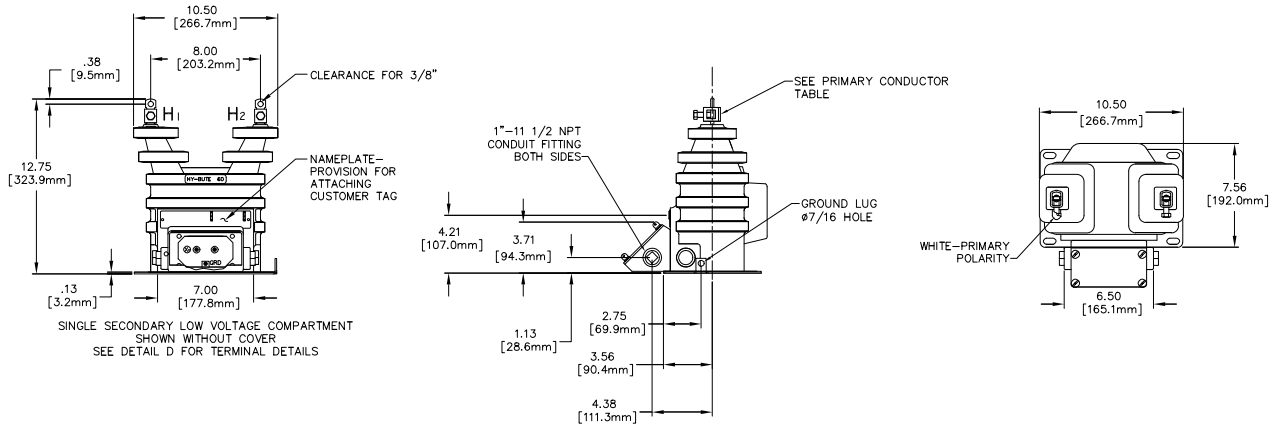
Outdoor SUPERBUTE Selection Guide

Product Class	5 KV	8.7 KV	15 KV	25 KV	35 KV	46 KV	69 KV
Station Class	JVW-4	JVW-5		JVS-150	JVS-200	JVS-250	JVS-350
				JVT-150	JVT-200	JVT-250	JVT-350
BIL		75 kV BIL	110 kV BIL	150 kV BIL	200 kV BIL	250 kV BIL	350 kV BIL
Accuracy, kVA Rating		0.3Z, 1.5 kVA	0.3Z, 1.5 kVA	0.3ZZ, 3 kVA	0.3ZZ, 3 kVA	0.3ZZ, 4.5-5 kVA	0.3ZZ, 4.5-5 kVA
Creep Distance		20.4" Creep	20.4" Creep	27-27.5" Creep	35-36" Creep	48-50" Creep	64-66" Creep
Net Weight		105 lbs	105 lbs	225-230 lbs	235-240 lbs	420 - 520 lbs	430-560 lbs
Distribution Class	JVW-3		JVW-110	JVW-6	JVW-7		
BIL	60 kV BIL		110 kV BIL	125-150 kV BIL	150-200 kV BIL		
Accuracy, kVA Rating	0.3Y, 0.75 kVA		0.3Y, 1 kVA	0.3Y, 0.75 kVA	0.3Y, 0.75 kVA		
Creep Distance	13.5" Creep		20.4" Creep	21" Creep	26.5" Creep		
Net Weight	44 lbs		100 lbs	105 lbs	140 lbs		

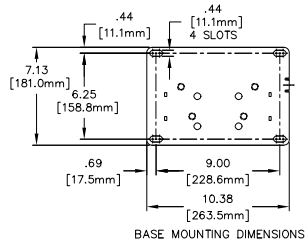
Outline Drawings Without Conduct Box



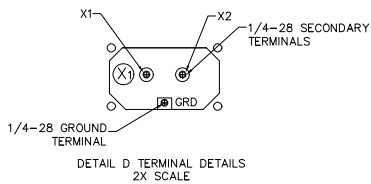
With Conduct Box



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 in a compartment molded in the side of the transformer. The compartment has a molded phenolic cover held by four brass, nickel-plated, captive thumbscrews, which engage a metal insert molded in the rubber. The thumbscrews are drilled to accommodate a seal wire. The compartment also has two openings for 1 inch conduit connection. The secondary terminals are the threaded type, each with cup washer, lock washer and nut. A manually operated, secondary short-circuiting switch is located between the secondary terminal studs.

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 available as an option. See unit selection table on page 1. 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. The polarity terminal is designated by use of the subscript 1, and the mark is 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 0.032 anodized aluminum. 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.

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