

## Specifications

### Conditions of Sale

**STANDARD:** The seller's standard conditions of sale set forth in Price Sheet 150 apply.

### SPECIAL TO THIS PRODUCT:

**NOTE:** S&C Indoor Voltage Sensors are not offered for sale separately; for information, contact your nearest S&C Sales Office.

**APPLICATION NOTE:** The S&C Outdoor Voltage Sensor is a capacitance-type voltage-monitoring device intended only for neutral-to-ground connection applications on ungrounded wye-connected shunt capacitor banks. It is typically used with the Type LUC Bankgard™ Relay for protection of small to medium-sized station-type banks on 60-Hertz● systems rated through 34.5 kV.

The outdoor voltage sensor is essentially a Cypoxy™ Insulator-encapsulated assembly consisting of a high-voltage capacitor series-connected to the primary side of a dry-type transformer. For surge protection, an internal gas-filled spark gap is provided in parallel with the primary winding to limit transient overvoltages at the transformer. A hanger bracket with a backup member and mounting bolts is furnished for clamp mounting to a horizontal structural member—or the hanger bracket can be attached directly to a structure.

An eyebolt connector accommodating conductors from number 6 solid through 250 kc mil stranded copper or aluminum, or 4/0 ACSR, is included for the high-voltage input termination. Secondary leads, stripped for wire-nut interconnection with the protective relay, are provided in the conduit-junction box attached to the low-voltage end of the voltage sensor.

The S&C Outdoor Voltage Sensor has relay accuracy over an ambient temperature range of -40°F to +160°F (-40°C to +71°C). It is a constant-current-output device, similar to a current transformer. Therefore, primary fusing—which is required by a voltage transformer—is eliminated. However, as with a current transformer, a resistive burden is required. This burden is provided by fixed resistors located in the conduit-junction box and factory-connected to the secondary of the outdoor voltage sensor's transformer. The resistance value of the burden selected provides an input-to-output ratio of 130:1 for a 14.4-kV outdoor voltage sensor; 200:1 for a 25-kV outdoor voltage sensor when connected to a high-impedance device such as the Bankgard Relay. Neutral-sensing applications with other solid-state, low-burden devices may be permissible.

**INCLUSIONS:** S&C Outdoor Voltage Sensors include:

- A hanger bracket with backup member and mounting bolts
- An eyebolt connector for high-voltage input termination
- A fixed resistive burden in an integral conduit-junction box which is attached to the low-voltage end of the outdoor voltage sensor
- Output leads for interconnection with the protective relay■

- For 50-Hertz applications, refer to your nearest S&C Sales Office.
- Refer to your nearest S&C Sales Office.



# Voltage Sensors

## How to Order

**STEP 1.** Select catalog number for the voltage sensor from Table 1.



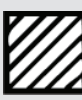
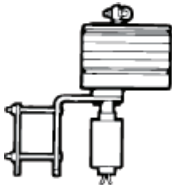
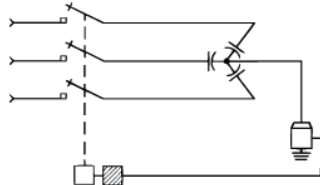
Catalog Number:

**Example:** The catalog number for a voltage sensor with a nominal rating of 14.4 kV and BIL of 95 is:

**8 1 6 0 2 R 2 B**

**Note:** S&C Voltage Sensors are for use with IntelliCap® 2000 Automatic Capacitor Controls with the S&C Voltage Sensor option “-N3.” The sensors are not intended to be used with other manufacturers’ controls.

**Table 1. S&C Outdoor Voltage Sensors<sup>①②</sup>**

Illustration	Application	Diagram			Capacitor-Bank Voltage Rating, kV	Voltage Sensor Rating, kV			Catalog Number	Page Reference for Dimensional Information
						System		Device, BIL		
						Operator	Max			
	For neutral-to-ground connection on ungrounded wye-connected shunt capacitor banks				25 and below	14.4	17.0	95	81602R2-B	3
					34.5	25	29	125	81603R2-B	4

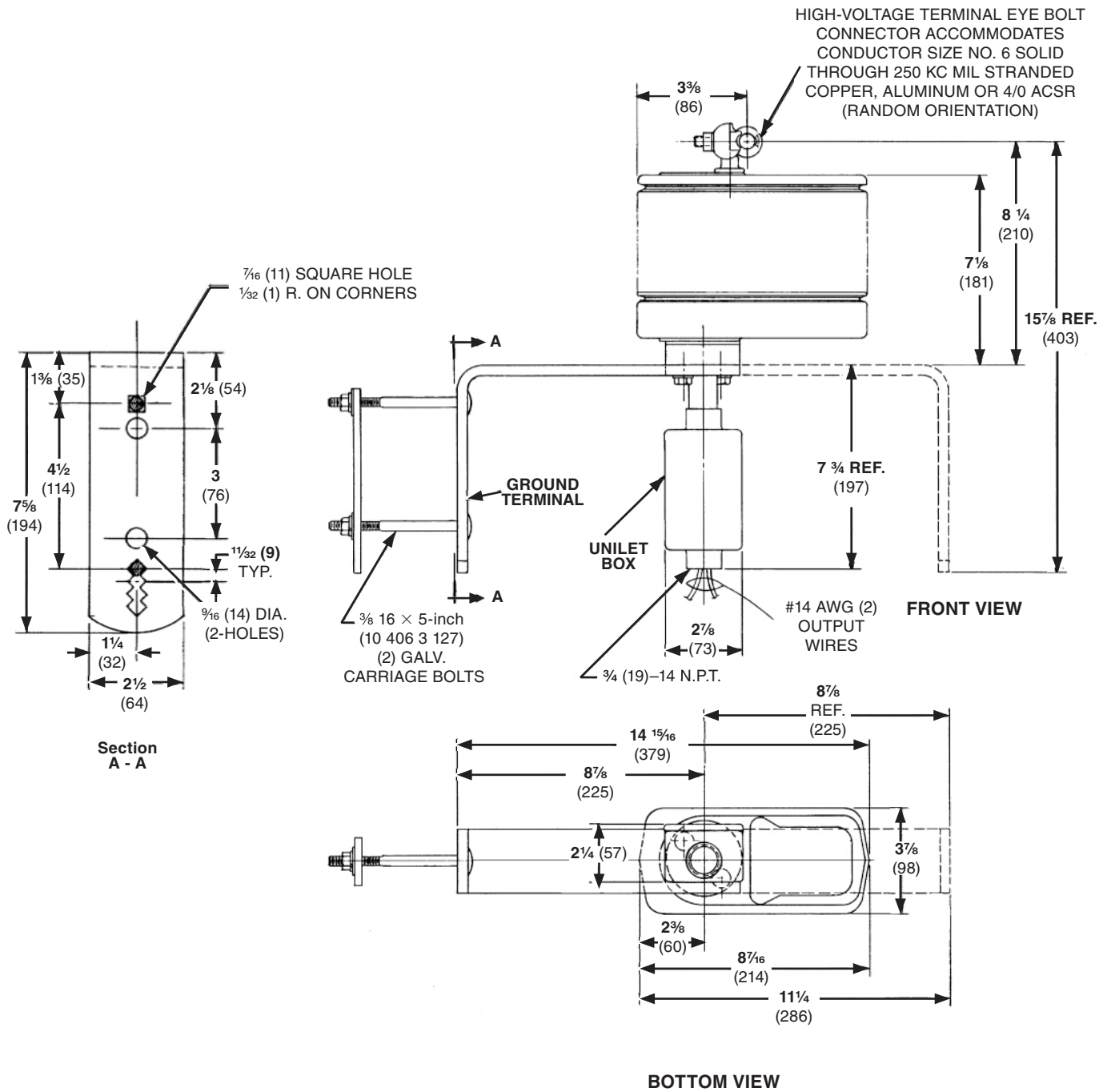
① The S&C Outdoor Voltage Sensor is a constant-current-output device, similar to a current transformer, and requires a constant secondary burden. This burden is included with each S&C Outdoor Voltage Sensor.

② The S&C Outdoor Voltage Sensor is typically used with the Type LUC Bankgard Relay for protection of small to medium-sized station-type ungrounded wye-connected capacitor banks on 60-Hertz systems

rated through 34.5 kV. For 50-Hertz applications, or for neutral sensing to provide input for a solid-state, high-impedance device other than the Bankgard Relay, contact the nearest S&C Sales Office. (Drawing CDR-3156 is included with S&C Outdoor Voltage Sensors to provide instructions for interconnecting the outdoor voltage sensor with the Type LUC Bankgard Relay.

Catalog Number 81602R2-B

Dimensions in inches (mm)



# Voltage Sensors

## Catalog Number 81603R2-B

