



## Installation Guidelines

### GEN2 Current and Voltage Sensor

15 kV p/n 9E65, 25k V p/n 9E66,  
& 35 kV p/n 9E67

**⚠ DANGER**

The sensor must be solidly grounded to earth before it is energized. Connection to the phase conductor will energize the sensor and will result in high voltage across the output unless grounded. Failure to ground before energizing can result in serious injury or death.

**⚠ DANGER**

Sensor must be applied within its electrical and mechanical ratings. Application of sensor in excess of its ratings can result in immediate or delayed electrical or mechanical failure. Failure to apply the sensor within its ratings can result in serious injury or death, or in premature failure of the sensor.

**⚠ DANGER**

Do not drop. While extremely durable, the sensor is cast from a material that can fracture if dropped onto a hard surface. Fractures can result in either catastrophic failure of the sensor upon energization resulting in serious injury or death, or in premature failure of the sensor.

**⚠ CAUTION**

Sensor must remain in packaging during transportation to installation site. Transportation of the sensor without its protective packaging may result in chips, cracks, or fractures to the sensor body. Physical damage can result in premature failure of the sensor or reduced electrical ratings.

**⚠ CAUTION**

Both the sensor cable connectors and the cable connector located on the sensor should remain dry and protected from inclement weather. The connectors are weatherproof once joined, but may allow moisture in the cable when the male or female connectors are left exposed to the elements. Moisture in the cable will result in inaccurate measurement readings.



**⚠ WARNING**

**DO NOT HIPOT.** HIPOT (high potential) testing will thermally damage the resistor assemblies in the sensor causing permanent damage. HIPOT testing voids the sensor's warranty. If a HIPOT test is necessary, contact Lindsey for alternate product intended for HIPOT.

#### Specifications:

Electrical Ratings			
Catalog Number Sequence	9E650/...	9E660/...	9E670/...
Insulation Class	15 kV	25 kV	35 kV
Impulse (BIL)	110 kV	150 kV	200 kV
Leakage Distance (in./mm)	19.9/505	29.4/747	36.5/927
Dry Arc Distance (in./mm)	8.8/223	11.9/302	15.1/385
Overall Height (in./mm)	12.4/315	15.5/395	18.7/475
Withstand* (60Hz, 1 min.)	34 kV	40 kV	50 kV
Corona (extinction)	11 kV	19 kV	26 kV
Operating Temperature	-40° C to +65° C		
Conductor Diameter	Two sided keeper accommodates 0.18" - 1.25" (4.6-32mm) diameter		
Construction	Hydrophobic cycloaliphatic epoxy		

\*NOTE: Withstand test is not performed on sensors with voltage sensing. Specify 50 Hz or 60 Hz.

**Specifications (continued):**

Voltage Signal Output	
Ratio	By catalog number
Output Impedance	Calibrated for a 1 MΩ load
Accuracy**	+/- 0.5%
Phase Shift	0 degrees for sensors with ratios of 1400:1 or greater, +/- 2 degrees for lower ratios

Current Signal Output	
Ratio	600A : 10 Volts
Output Burden/Load	Calibrated for 10 kΩ or greater load
Accuracy**	+/- 1%
Phase Shift	0 degrees nominal, +/- 1.5 degrees
Open Circuit Voltage	10V at 600A line current

Mechanical Ratings			
Insulation Class	15 kV	25 kV	35 kV
Cantilever Strength (lbs./kg)	2800/1270	2800/1270	2800/1270
Weight (lbs./kg)	18 / 8.2	20 / 9.1	24 / 10.9
Shipping Weight (lbs./kg)	20 / 9.1	22 / 10.0	26 / 11.8

**\*\*NOTE:** Accuracy guaranteed only when used with Lindsey supplied cables.

**Characteristics:**

Lindsey GEN2 sensors offer a simplified installation procedure. Designed specifically for 15 to 35kV systems, the sensor is designed for use with primary conductor diameters from 0.25 to 1.25 inches. No special calibration for conductor diameter is required to produce its rated accuracy output. The sensor can be mounted vertically or horizontally to replace any standard insulator with the conductor held precisely by dual clamps. The deep groove design places the current path at the center of sensing elements that are embedded inside the solid insulator.

The current output signal of the GEN2 sensor is presented as a voltage of 10V and less than 1mA at rated current for safe handling.

**Installation:**

The GEN2 Sensor is designed to be installed without de-energizing or cutting the main utility conductor.

1. Using the sensor catalog number, use the Specifications tables to ensure the sensor is being applied in accordance with its ratings.
2. Requires Lindsey Part No. 2041, Line Post Mounting Stud for wood crossarm, or Part No. 2040 Mounting Stud for metal crossarms. If replacing an existing insulator, remove the existing insulator using approved work methods. Mount the GEN2 sensor. Install the Line Post Mounting Stud in the base of the sensor and install on the crossarm. Rotate the sensor to place "H1" towards the feeder source. "H1" is always opposite the signal cable connector. "H1" is marked adjacent to the conductor groove.
3. Grounding procedure: Tighten nut against square washer on crossarm. Add two square washers, double coil lock washer and square nut to stud and loop a No. 6 (typical) solid copper ground wire between washers and tighten nut. A positive ground must be maintained. Connect grounding jumper to a low resistance pole ground.
4. Connect signal cable to the sensor. Gently rotate the outer collar of the cable connector (see Figure 1.) until you feel the slots in the cable align with the pins on the female base which is molded into the sensor. Push gently until the cable is seated against the sensor. Rotate the outer collar of the cable connector 1/4 turn clockwise until you feel a "click" as the connector halves seat into each other. Secure with wood staples to crossarm or route inside conduit being careful not to crimp or damage the signal cable. Now, connect cable to controller.



Figure 1.

### Installation (*continued*):

5. A): **De-energized or Insulated Glove Installation Method:** Install conductor into the top groove of the GEN2 sensor. Conductor keepers are reversible: one side accepts conductors ranging from 0.18 inch to 0.73 inch (4.6 - 18.5 mm) diameter; inverting the keeper will allow it to accept conductors from 0.73 to 1.25 inch (18.5 - 32 mm) diameter. If preferred, armor rod may be used without affecting accuracy. Tighten clamping bolts.

B): **Hot Stick Installation Method:** Install conductor into the top groove of the GEN2 sensor. Conductor keepers are reversible: one side accepts conductors ranging from 0.18 inch to 0.73 inch (4.6 - 18.5 mm) diameter; inverting the keeper will allow it to accept conductors from 0.73 to 1.25 inch (18.5 - 32 mm) diameter. If preferred, armor rod may be used without affecting accuracy.

Install one keeper pivot bolt through the keeper into the top of the sensor. Start a second bolt into the top of the sensor. Both bolts should be tightened only so far as to allow free movement of the keeper in the direction of the top groove.

Swing the keeper to the side clear of the top groove of the GEN2 sensor.

Lower the conductor into the top groove of the sensor (See Figure 2.)

Connect the shotgun/hot stick hook through the working hole on the keeper.

Swing the keeper over the conductor in the top groove until the slotted hole in the keeper makes contact with the second bolt in the top of the GEN2.

The GEN2 device is now energized (See Figure 3.)

Tighten both keeper bolts to 25 to 30 ft. lbs. with your organizations accepted practice/methods for live line work.

Repeat the same procedure to the keeper on the opposite side of the GEN2.

6. Installation is complete.



Figure 2.



Figure 3.