FACT SHEET

# LEA Sensors Compatible with SEL-700 Series Relays

Various SEL-700 series relays are now available with LEA sensor inputs. This includes model SEL-700BT, SEL-700G, SEL-787-2/-3/-4, SEL-710-5, SEL-751, and SEL-787L relays for line, feeder, motor, generator, and transformer protection applications.

Lindsey now offers current and voltage sensors compatible with these relays. The sensors are designed for the specific input impedance requirements of the relays per IEEE C37.92 and IEC 61859-10, -11, and - 13 standards. The sensors also feature the RJ-45 style connectors used by these SEL relays.

**LEA Current Sensors**

For switchgear applications, Lindsey offers both flexible Rogowski coil sensors and low-power CT options. Both are 600V insulation class for use on insulated MV cables. The magnitude and phase accuracy of these sensors meets the Standard's requirements.

Rogowski coil sensors are designed to use the integrator built-in to the SEL relays.

**LEA Voltage Sensors**

Voltage sensors are available in IEEE Std 386 underground compatible elbow, T-body and plug style sensors. Lindsey LVS voltage sensors for use in live-front switchgear are also available in LEA versions.

## About LEA Sensors

Various relay manufacturers, are offering relays compatible with Low-Energy Analog (LEA) sensors. LEA current sensors provide excellent linearity, a wide dynamic range, and often reduced size and weight. Most Lindsey voltage sensors for the past 40+ years have always been LEA designs internally. Lindsey's new LEA voltage sensor products are specifically tailored to interface to relays following the IEEE C37.92 and IEC 61859-10, -11, and - 13 standards.

**Lindsey LEA Rogowski Coil Current Sensor**

## LEA Voltage Sensor Ordering Table*

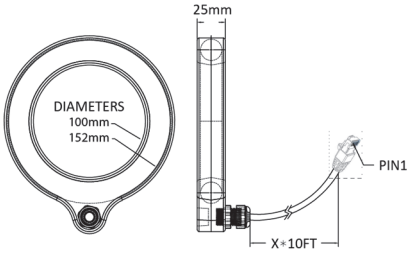
| | Sensor Style | | | |
|---|---|---|---|---|
| | **600/900A Plug Style** | **200A Elbow** | **200A T-Body** | **Type LVS Live-Front** |
| **15kV Accuracy 1400:1 Ratio** | | | | |
| 0.50% | 9552/0111/2M/RJ | 9532/0111/2M/RJ | 9542/0111/2M/RJ | 95L61/0111/2M/RJ |
| 0.30% | 95M52/0111/2M/RJ | 95M32/0111/2M/RJ | 95M42/0111/2M/RJ | 95LM61/0111/2M/RJ |
| 0.15% | 95R52/0111/2M/RJ | 95R32/0111/2M/RJ | 95R42/0111/2M/RJ | N/A |
| **25kV Accuracy 2200:1 Ratio** | | | | |
| 0.50% | 9553/0211/2M/RJ | 9533/0211/2M/RJ | N/A | 95L62/0211/2M/RJ |
| 0.30% | 95M53/0211/2M/RJ | 95M33/0211/2M/RJ | N/A | 95LM62/0211/2M/RJ |
| 0.15% | 95R53/0211/2M/RJ | 95R33/0211/2M/RJ | N/A | N/A |
| **35kV Accuracy 3300:1 Ratio** | | | | |
| 0.50% | 9554/0311/2M/RJ | 9534/0311/2M/RJ | N/A | N/A |
| 0.30% | 95M54/0311/2M/RJ | 95M34/0311/2M/RJ | N/A | N/A |
| 0.15% | 95R54/0311/2M/RJ | 95R34/0311/2M/RJ | N/A | N/A |

Other style Lindsey voltage sensors can also be provided in an LEA version. Please contact factory for ordering information.

*All voltage sensors feature a 10 foot (3m) cable terminated with a shielded RJ45 connector (pin #7: V+, pin #8: GND).
Other ratios, cable lengths and cable styles are available. Contact the factory for more information.

## LEA Current Sensor Ordering Table

| Sensor Type | Part # | Description |
|---|---|---|
| Rogowski Coil | 95RC10/7021/RJ | Fully shielded Rogowski coil, 133mV/kA@60Hz, cast-in 15' cable terminated with shielded RJ45 connector (pin #1: S1, pin #2: S2). Non-integrated output.<br>Dimensions: 100mm ID (Other IDs available by special order)<br>Other ratios, cable lengths, and cable/connector styles are available. |
| Low Power CT | 95LP10/8021/RJ | Low-Power CT, 600A:200mV, 15' cable terminated with shielded RJ45 connector (pin #1: S1, pin #2: S2).<br>Other ratios, cable lengths and cable/connector styles are available. The Low Power CT is also available in the same dimensional package as Lindsey's traditional ElbowSense™ Ring Style current sensor.<br>Contact the factory for more information. |




**Low Power CT Dimensions**

**NOTE:** For dimensions of all other sensors, see the Lindsey Sensors Catalogs @ Lindsey-USA.com

Lindsey Manufacturing Co., dba Lindsey Systems
760 N. Georgia Avenue | Azusa, CA 91702 USA
Tel. +1-626-969-3471 | www.lindsey-usa.com



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LINDSEY SYSTEMS

# FACT SHEET

## ElbowSense™ Metering Class Current Sensors with Extended Harmonic Response

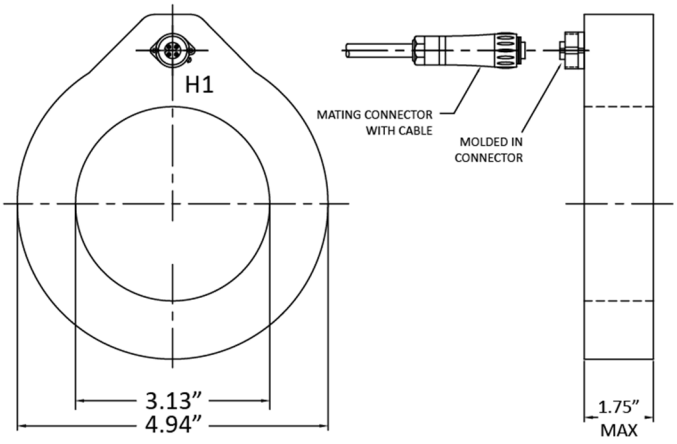
Lindsey Systems offers metering class accuracy current for use in underground, pad-mount, and specific metal-enclosed applications. All current sensors are rated 600V and are intended to be used with either insulated medium voltage conductors.

### ElbowSense Ring-Style and Slim Ring-Style Current Sensors

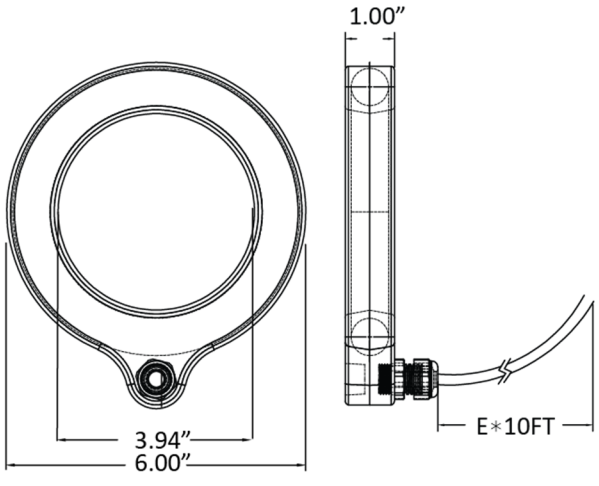
This air-core CT based sensor is watertight and suitable for use in pad-mount, metal-clad, and submersible vault applications. It offers high accuracy, no phase shift, and flat harmonic response through the 80th harmonic.

The M series current sensors offer 0.3% accuracy per IEEE Standard C57.13. The R series current sensors meet the 0.15S accuracy definition per IEEE C57.13 and 0.1% accuracy class per IEC 61689-02.

Ring-Style sensors are available with cast-in cables or connectors. Slim Style sensors are only available with cast-in cables. Pigtail cable is included per ordered part number.




Ring-Style Current Sensor




Slim Ring-Style Current Sensor

## ElbowSense™ Metering Accuracy Current Sensor Ordering

**Part Number Sequence: A B 10 / C 0 D E**

| A | B | 10 / | C | 0 | D | E |
|---|---|---|---|---|---|---|

| Family | Sensor Type | | Current Output Signal | | Connector | | Cable Length | |
|---|---|---|---|---|---|---|---|---|
| 95 Ring-Style | R | IEEE C57.13 0.15S and IEC 61689-2 0.1 Accuracy | 3 | 600A:5A | 1 | Cast-in connector | 1 | 10 ft. (3m) |
| 95S Slim Ring-Style | M | IEEE C57.13 0.3 Accuracy | 4 | 600A:1A | 2 | Cast-in pigtail cable of length “E” | 2 | 20 ft. (6m) |
| | | | 5 | 300A:5A | | | X | X = Length in multiples of 10 ft. |
| | | | X | Consult Factory | | | | |

**Example**

**95R10/3011**

| 95 | R | 10/ | 3 | 0 | 1 | 1 |
|---|---|---|---|---|---|---|

**Example:** 95R10/3011 is a ring-style metering accuracy current sensor, 600A:5A ratio, with a cast-in connector and supplied with a matching 10-ft cable.

**Note:** For other options, contact the Factory.

## ElbowSense Current Sensor Specifications

| **Sensor Style** | **Ring-Type** | | |
|---|---|---|---|
| Ratio | 600A:5A | 600A:1A | 300A:5A |
| Burden | See Plots | | |
| Accuracy | IEEE Std C57.13 0.15S or 0.3 IEC Std 61689-2 0.1 | | |
| Phase Shift | 0 degrees nominal, +/- 0.5° | | |
| Operating Temperature Range | -45°C / +80°C | | |
| Stated Accuracy Temperature | -40°C / +55°C | | |

Lindsey Manufacturing Co., dba Lindsey Systems
760 N. Georgia Avenue | Azusa, CA 91702 USA
Tel. +1-626-969-3471 | www.lindsey-usa.com



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