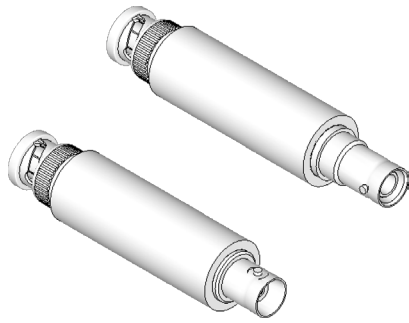


# Entube-SE

High Performance  
Voltage Divider



## OVERVIEW

The Entube SE series is a family of voltage transducers designed for high quality single ended measurements in a very compact form factor, and without need for power supplies. This series covers the ranges of  $\pm 50V$  to  $\pm 5000V$  with up to 50kHz bandwidth and up to 0.2% of signal accuracy.

The Entube-de sensor operates as a resistor divider with an anti-aliasing filter on its output. It generates a  $\pm 200mV$ ,  $\pm 1V$  or  $\pm 2V$  scaled down version of the input voltage, to be connected to a Single Ended data acquisition channel.

The Entube SE is part of Verivolt's sensing platform, which is aimed at allowing users to laid out multiple distributed sensors with a minimum of cabling required and no power supplies. This platform together with the Entube-de ultra-compact form factor, allows for very high channel densities, while delivering high performance for a low cost.

## SPECIFICATION

Electronical	100V	200V	300V	400V	500V	750V	1000V
Input Impedance	> 1 M $\Omega$		> 2 M $\Omega$			> 3 M $\Omega$	
Output Impedance (1v)	5k $\Omega$	2.5k $\Omega$	3.3k $\Omega$	2.5k $\Omega$	4k $\Omega$	4k $\Omega$	5k $\Omega$

Electronical	2000V	3000V	5000V
Input Impedance	> 10 M $\Omega$	> 20 M $\Omega$	> 50 M $\Omega$
Output Impedance (1v)	16.6k $\Omega$	12.2k $\Omega$	10k $\Omega$

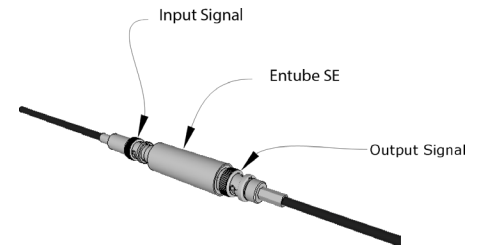
Electrical	
Accuracy (2 $\sigma$ / 3 $\sigma$ ) <sup>(1)</sup>	$\pm 0.2\%$ / $0.4\%$
Input-Output non-linearity	< 750 ppm
Output voltage	$\pm 200mV$ , $\pm 1V$ and $\pm 2V$
Gain temperature drift	$\pm 100$ ppm/ $^{\circ}C$
Output type	Single-ended signal
Output Offset Voltage (Referenced to output)	< $\pm 10\mu V$
Output connector	BNC (Male)

Environmental	
Operating temperature	- 35 to 70 $^{\circ}C$
Storage temperature	- 40 to 80 $^{\circ}C$

## HARDWARE DESCRIPTION

The Entube Z sensor family operates as a single ended voltage divider that outputs a  $\pm 200mV$ ,  $\pm 1V$  or  $\pm 2V$  output signal, which can be processed by a computer based measurement platform.

The coaxial input line connect to the sensor via a SHV or BNC connector, while the conditioned signal from the sensor comes out on a standard BNC Plug.



Mounting Sample of Entube SE

Due to its compact size and shape, the Entube SE sensor family can be easily mounted anywhere between the signal source and the data acquisition system. The versions up to 5kV may even be used inline with the cable and not require any mounting at all. All can be secured to fixtures using cable ties.

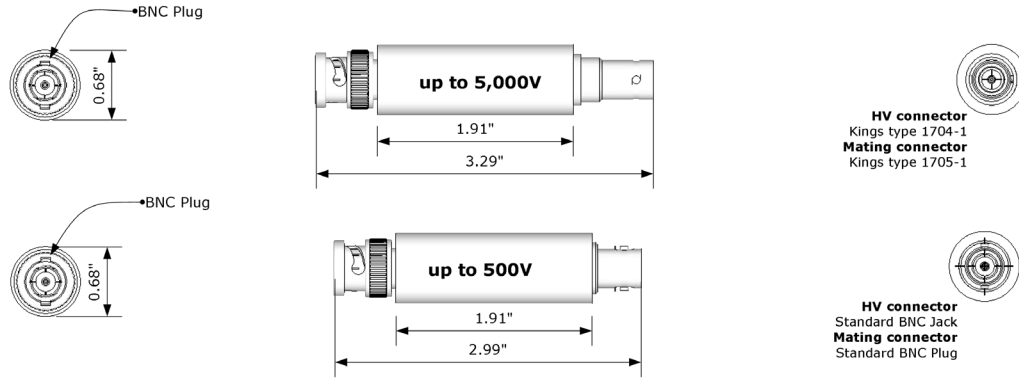
Mechanical	100V	200V	300V	400V	500V	750V	1000V	2000V
Input connector (1-Pin Coaxial)	BNC					SHV		
Outer Dimensions (Cylindrical shape)	0.68" $\varnothing$ x 3.0"					0.68" $\varnothing$ x 3.29"		
Weight	34 g (1.2 oz)					180g ( 6.3 oz)		

Mechanical	3000V	5000V
Input connector (1-Pin Coaxial)	SVH	
Outer Dimensions (Cylindrical shape)	0.68" $\varnothing$ x 3.29"	
Weight	180g ( 6.3 oz)	

(1) Form factor can vary for customized solutions.

(2) High voltage connectors must always be cleaned prior to mating. The proper cleaning method is to wipe or spray the interface area with isopropyl alcohol and immediately blow an inert gas such as dry nitrogen over the interface area until dry. No other cleaning method should be attempted.

# MERCHANICAL DIMENSIONS

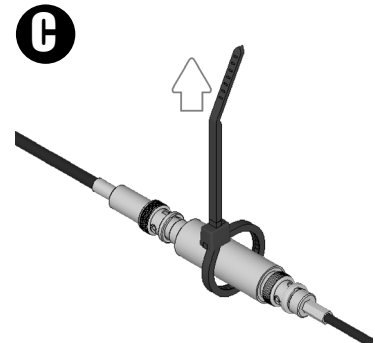
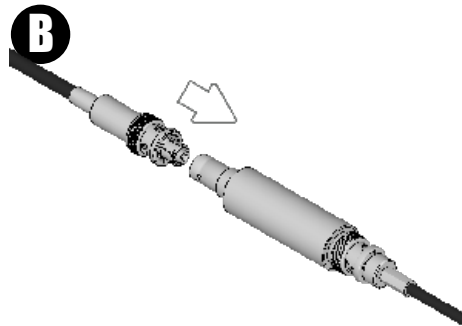
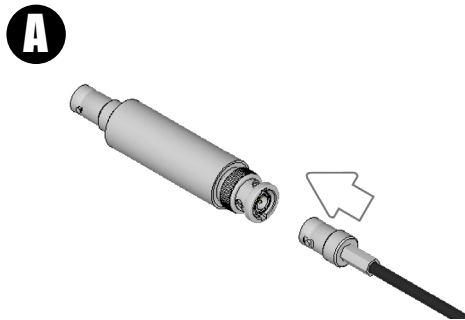


# HARDWARE CONFIGURATION

**A.** Connect BNC cable to sensor output. Make sure the BNC jack is connected to DAQ or at least properly grounded.

**B.** Make sure Input Signal cable is de-energized to avoid arcing. Verify if input connectors are clean. Plug input signal into input connector of sensor.

**C.** Secure sensor to avoid accidental disconnection during operation



## Standards and Certifications

• CE



## ⚠ DANGER

THIS SENSOR IS NOT A SAFETY DEVICE AND IS NOT INTENDED TO BE USED AS A SAFETY DEVICE. This sensor is designed only to detect and read certain data in an electronic manner and perform no use apart from that, specifically no safety-related use. This sensor product does not include self-checking redundant circuitry, and the failure of this sensor product could cause either an energized or de-energized output condition, which could result in death, serious bodily injury, or property damage.