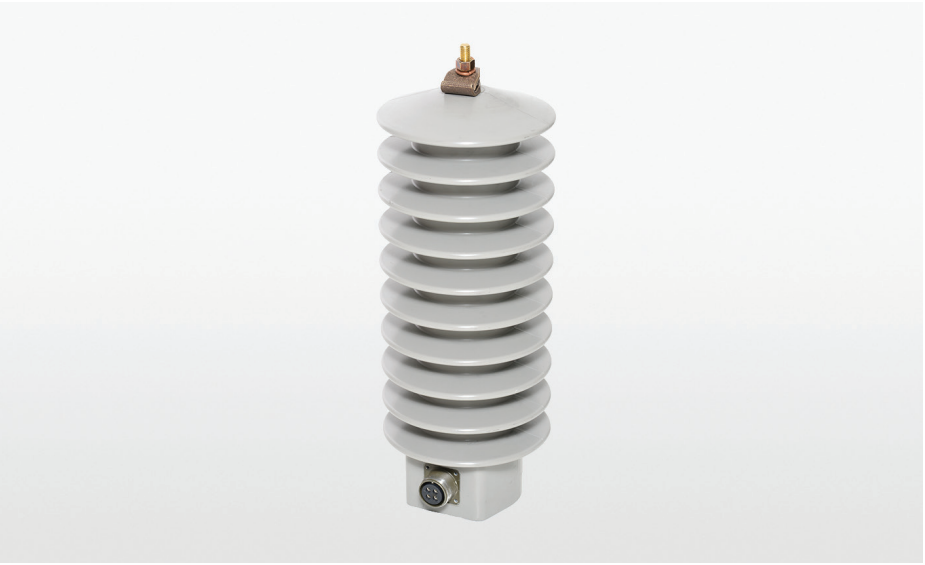
DISTRIBUSENSE® SENSORS

VLS-150

25 kV outdoor voltage sensor



The VLS-150 outdoor voltage sensor is designed to connect with meters, relays, and various controllers for real time data acquisition to achieve grid modernization objectives.

Overview

Today, utilities experience unprecedented challenges associated with power delivery. An aging grid infrastructure coupled with increasing consumer demand, stringent regulations, avoiding peak-time cost penalties, and integrating distributed energy sources are factors utilities must consider to improve power delivery and reliability. More data collection points from feeder locations to substations ensures the grid is optimized to address these challenges.

Voltage sensors are ideal for providing feeder intelligence that drives decision-making for a variety of important grid modernization applications. Utilities benefit from increased reliability and efficiency by decreasing energy costs, protecting revenue, avoiding costly regulatory penalties, and boosting customer satisfaction. Maximizing these benefits requires understanding grid conditions throughout the entire length of the feeder.

Applications

The VLS-150 is designed to connect with meters, relays, and various controllers for real time data acquisition to achieve grid modernization objectives. It can be applied in the following ways to enhance the effectiveness of new or existing distribution automation solutions:

- Sensing at capacitor banks for Volt/VAr optimization through voltage control
- Sensing at reclosers and overhead switches for fault detection, isolation, and restoration schemes
- Feeder sensing at the head and end of the feeder for conservation voltage regulation

To ensure accurate measurement and proper performance, the sensor and IED must be compatible. Due to the wide variety of relays and controllers offered in the market today, contact the factory or your ABB sales representative to ensure sensor compatibility.

Benefits

- Standard ratios provide several outputs for accurate voltage sensing
- Small and lightweight
- Provides accurate, reliable voltage readings at points throughout the grid
- Integrates with a wide variety of controllers
- HCEP construction ensures long product life
- Constructed with military-grade amphenol connectors to ensure long product life

Construction features

The VLS-150 design implements embedded resistive voltage divider technology. This provides the voltage output directly proportional to the primary line-ground voltage with high linearity and accuracy. Standard distribution voltage ratios are available with a wide voltage range to ensure compatibility with a wide range of controllers.

Product details	
System voltage class (L-L)	25 kV
BIL	150 kV
Accuracy	<1%
Rated voltage factor (RVF)	1.9 @ 120 V output 1.2 @ 1.2-6.5 V output
Frequency	60 Hz
Insulating material	Hydrophobic cycloaliphatic epoxy (HCEP)
Load instrument impedance	1 MΩ
Strike	14.4" (366 mm)
Creep	33.3" (847 mm)
Weight	15 lbs. (6.8 kg)
Temperature range	-40°C to 85°C
Power frequency withstand	50 kV
Installation	Crossarm mounted
Standard cable lengths**	16.4' (5 m), 32.8' (10 m), or 49.2' (15 m)

Note: Performance is optimized with cable length provided from the factory. Cutting or using a different cable can impact accuracy. Contact factory before modifying the cable.

VLS-150 selection guide

Primary voltage	Voltage ratio	Voltage output	Cable length	Style number
			5 m	E-923A539G01
			10 m	E-923A541G01
12000	100:1	120	15 m	E-923A542G01
			5 m	E-923A539G02
			10 m	E-923A541G02
13200	110:1	120	15 m	E-923A542G02
			5 m	E-923A539G03
			10 m	E-923A541G03
14400	120:1	120	15 m	E-923A542G03
			5 m	E-923A623G01 +
			10 m	E-923A624G01 +
12000 - 14400	2200:1	5.1-6	15 m	E-923A625G01 +

Voltage output is stated at nominal primary voltage.

+ Ratio and phase angle IEC class 0.5%, RVF = 1.2

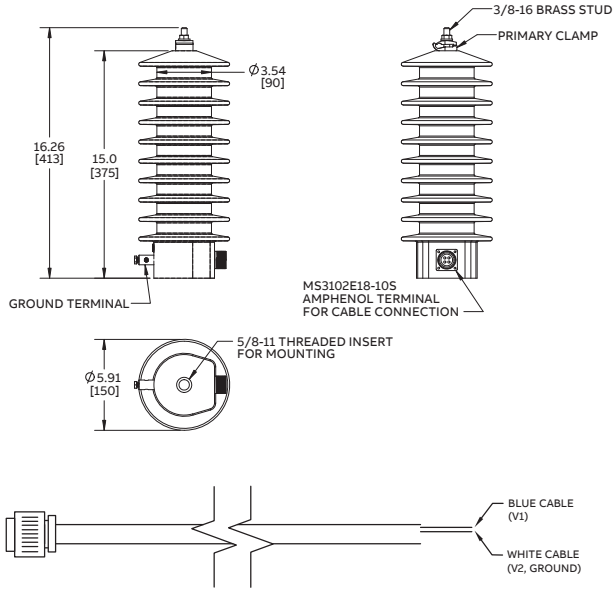
Available with 3-in-1 cable to connect 3-phase sensors to IED using one cable.

Additional styles available upon request. Contact your ABB sales representative or call +1-252-827-3212 for more information.

Installation

The VLS-150 is bolt mounted to the crossarm or outdoor apparatus. The voltage clamp at the top of the sensor is connected by tapping to the primary conductor. A built-in connector and secondary shielded cable attach the sensor to the controller. A separate, self-locking screw terminal provides a simple ground connection to the sensor.

Unit dimensions (inches [mm]) and cable drawing



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