

Surge Protection Devices: Feeling lonely, please think about me!

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ABSTRACT

The purpose of this abstract is to discuss key points to achieve robust design and achievement of equipment safety using surge protection devices (SPDs) for the Water and Wastewater Industry.

Unprecedented voltage/current surge in an electrical circuit, primarily due to lightning, is one of the major causes for device failure. Some of the devices include field instruments, analyzers and Input / Output (I/O) modules inside Programmable Logic Controllers (PLC). SPDs help to alleviate this issue, by grounding any voltage/current beyond the threshold limit. Sadly, this is an often overlooked entity despite its importance.

This presentation will discuss best design practices to ensure that surge protection devices are implemented for all industrial applications. From past experiences, the following are found to be the key tasks towards a successful SPD deployment:

1. Identifying SPD needs
 - a. Existing or new infrastructure.
 - b. For field equipment/instruments
 - c. Inside control panels
 - d. Signal and power wirings
2. Realizing how its functionality is unique from other protective/isolation devices
 - a. Exploring options available for specific applications.
3. Coherent design documentation
 - a. Specifications
 - b. Drawings
4. Proper installation and maintenance
 - a. Monitoring options and indications

ABOUT THE AUTHORS

Kalyani Ganesan has over 2 years of experience with Carollo Engineers, Inc. as an I&C Engineer. She has provided Instrumentation and Control engineering services for several projects in the Water and Wastewater Industry. She holds a Bachelor's of Technology Degree in Electronics and Communications Engineering from Amrita School of Engineering, Coimbatore-India, and a Master's of Science in Electrical Engineering from University of Texas at Dallas, United States. She has been a member of ISA since 2017, and is also a member of ISA's Water Wastewater Industries Division.

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Manoj Yegnaraman has over 12 years of experience in Instrumentation and Control System design, specifically for the Water and Wastewater Treatment Industry. He is experienced in developing SCADA Master Plans for large Utilities. He also performs I&C project management and design for Water and Wastewater Projects. Manoj has a B.E. in Instrumentation and Control Engineering from University of Madras, India, and an M.S. in Electrical Engineering from University of Alabama in Huntsville. Manoj is a Senior Member of ISA, and is certified in PROFIBUS DP and PROFIBUS PA by PROFI International.

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