

## Tutorial #2 Introduction to Digital Switchgear (4 hour) – Harsh Karandikar

Medium voltage (MV) switchgear is a key element of the electrical energy distribution system. The Digital Switchgear concept, for MV distribution, presents many operational advantages and is inherently safe. It is based on the combination of technologies such as current and voltage sensors, IEC 61850 incorporated into modern numerical IEDs and breaker and switchgear condition monitoring sensors. When these technologies are combined in an optimal way the advantages of digital switchgear include increased safety, space, weight and energy savings, flexibility towards changing load flows, the ability to easily handle load changes, quicker delivery times and the possibility of late customization. In this tutorial, we will cover the background and characteristics of Digital Switchgear and contrast it with conventional switchgear. Two key component technologies, current and voltage sensors and IEC 61850 based protection and control will be covered in depth. The practical experiences from the early projects in the field will be presented.