Applying
FOUNDATION Fieldbus

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The conventional signal connections from a sensor to a controlling device requiring the sensed value (or from a controlling device to an actuator) are a 4–20 milliamp or 1–5 volt signal standard. Although they are very limiting in nature (e.g., multiple wire connections, cost of cable laying, signal conversions), these analog connections have worked for years. They do not permit intelligent devices to “talk” to one another except to provide the single primary variable to be converted to an analog signal on the way out of one digital device and converted back to a digital value on the way into the other digital device. Each conversion decreases accuracy and limits precision. Analog signals are not very secure, and analog circuits are not as reliable as digital circuits. A standard digital communications protocol that enables intelligent devices to share primary values, parameters, display and trending information, and even alarms and events is the need of the hour. Furthermore, a multidrop communications network would reduce new wiring costs significantly and permit peer-to-peer communications. Fieldbus is a concept designed to satisfy these very needs.

Let us attempt to understand the evolution of FOUNDATION Fieldbus, including its history; primary drivers of such technology; how FOUNDATION Fieldbus works; different application scenarios; different rendering technologies applicable in FOUNDATION Fieldbus; installation, engineering, and maintenance considerations; benefits to the users; and economics of using FOUNDATION Fieldbus in projects.