



“Industrial Wireless Sensor Networks”

The Theme: Wired industrial communication systems (Fieldbus systems, Ethernet-based real-time communication systems) have been introduced successfully in Factory Automation as well as in Process Automation. Due to increasing the flexibility and to enable mobility, wireless communications are going to claim an important part of the industrial communications, esp. of distributed Sensor Networks. Thus, the specific requirements of the use cases focused to the use of wireless technologies have to be considered, e.g. co-existence of different wireless networks within a workshop, mesh topology, low power consumption, additional safety and security measures. There are standardization activities and alliances focused on different radio technologies and/or different use cases.

The focus on distributed Sensor Networks means:

- Local distribution: typical area of an automation installation within a factory or a process plant (main focus of this special section).
- Geographical (wide area) distribution: future concept based on the idea of Virtual Automation Networks. It means: connection of geographically distributed Wireless Sensor Networks by means of the VAN infrastructure (wired and/or wireless). It means: more than just point-to-point cable replacement

The delimitations of this special section are:

- Wireless: it means use of (only) wireless/radio-based transmission technologies
- Industrial: it means use cases within the background of automation applications, esp. Factory automation; Process automation; (Industrial) Building automation; Energy systems.

Topics of interest of this Special Section include, but are not limited to:

- Technology (Radio frequency approaches with respect to industrial wireless sensor networks)
- Wireless sensor networks in automation applications (Wireless sensor networks in factory automation – Requirements and approaches and ongoing activities; Wireless sensor networks in process automation based on Wireless Hart; Wireless sensor networks in (industrial) building automation – a survey (market situation, requirements, approaches); Wireless sensor networks in energy systems – survey (market situation, requirements, approaches)
- Integration concepts (Integration of Wireless Hart into existing wired Hart solutions; Integration of Wireless Hart into PROFIBUS and PROFINET for process automation; Integration of WSN for FA into PROFIBUS and PROFINET for factory automation)
- Future concepts and other facets (Geographically distributed wireless sensor networks using Virtual Automation Networks infrastructure; Co-existence of wireless sensor networks with other wireless networks in shop floors; Energy concepts in wireless sensor networks; Scheduling and network management for Wireless Hart; Evaluation of temporal and failure behavior of industrial wireless networks – methodology and examples)

Manuscript Preparation and Submission

Follow the guidelines in “Information for Authors” in the IEEE Transaction on Industrial Electronics <http://tie.ieee-ies.org/tie/>
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