

INTERNATIONAL STANDARD



**Industrial communication networks – Fieldbus specifications – WIA-PA
communication network and communication profile**



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INDUSTRIAL COMMUNICATION NETWORKS – FIELDBUS SPECIFICATIONS – WIA-PA COMMUNICATION NETWORK AND COMMUNICATION PROFILE

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This standard cancels and replaces IEC/PAS 62601 published in 2009. This first edition constitutes a technical revision.

The text of this standard is based on the following documents:

FDIS	Report on voting
65C/663/FDIS	65C/671/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with ISO/IEC Directives, Part 2.

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INDUSTRIAL COMMUNICATION NETWORKS – FIELDBUS SPECIFICATIONS – WIA-PA COMMUNICATION NETWORK AND COMMUNICATION PROFILE

1 Scope

This International Standard specifies the system architecture and the communication protocol of Wireless networks for Industrial Automation – Process Automation (WIA-PA) built on IEEE STD 802.15.4-2006.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC/TS 61804-2: 2006, *Function blocks (FB) for process control – Part 2: Specification of FB concept*

IEEE STD 802.15.4-2006, *IEEE Standard for Information technology – Telecommunications and information exchange between systems – Local and metropolitan area networks – Specific requirements – Part 15.4: Wireless Medium Access Control (MAC) and Physical Layer (PHY) Specifications for Low Rate Wireless Personal Area Networks (WPANs)*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

3.1.1

absolute timeslot number

number of timeslots from the start of the network, generally denoting the current timeslot. Its value increases by one, and does not decrease. Its current value is always the sequence number of the current timeslot. Its maximum value is $(2^{48}-1)$. After the maximum value, it re-counts from zero

3.1.2

active leaving

process by which an online field device is allowed to leave the network through applying to its routing device or by which an online routing device is allowed to leave the network through applying to the gateway device

3.1.3

adaptive frequency hopping

change of communication channels according to actual condition of channels in every timeslot during the intra-cluster period of WIA-PA superframe

3.1.4

adaptive frequency switch

change of communication channels according to the actual condition of channels during the beacon frame and active period in a superframe cycle, and using different channels in different superframe cycles