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Information technology — Smart transducer interface for sensors and actuators —

Part 7: Transducer to radio frequency identification (RFID) systems communication protocols and Transducer Electronic Data Sheet (TEDS) formats

Technologies de l'information — Interface de transducteurs intelligente pour capteurs et actuateurs —

Partie 7: Protocoles de communication entre capteurs et systèmes d'identification par radiofréquence (RFID) et feuilles de données électroniques du transducteur (TEDS)

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Foreword

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The main task of ISO/IEC JTC 1 is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

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ISO/IEC/IEEE 21451-7 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*, in cooperation with the Technical Committee on Sensor Technology (TC9) of the IEEE Instrumentation and Measurement Society, under the Partner Standards Development Organization cooperation agreement between ISO and IEEE.

ISO/IEC/IEEE 21451 consists of the following parts, under the general title *Information technology — Smart transducer interface for sensors and actuators*:

— *Part 1: Network Capable Application Processor (NCAP) information model*

— *Part 2: Transducer to microprocessor communication protocols and Transducer Electronic Data Sheet (TEDS) formats*

— *Part 4: Mixed-mode communication protocols and Transducer Electronic Data Sheet (TEDS) formats*

— *Part 7: Transducer to radio frequency identification (RFID) systems communication protocols and Transducer Electronic Data Sheet (TEDS) formats*

Introduction

This part of ISO/IEC/IEEE 21451 describes communication methods, data formats and provides a Transducer Electronic Data Sheet (TEDS) for sensors working in cooperation with radio frequency identification (RFID) systems. This part of ISO/IEC/IEEE 21451 does not outline, recommend, or prescribe any specific air-interface protocol. This part of ISO/IEC/IEEE 21451 is intended to be air-interface agnostic.

In the ISO/IEC/IEEE 21451 series of standards, transducers (sensors or actuators) are connected to a transducer interface module (TIM), which is connected to a network capable application processor (NCAP) to allow network access of transducer data. ISO/IEC/IEEE 21450 defines a set of common functionality, commands, and TEDS for the ISO/IEC/IEEE 21451 series of smart transducer standards.

ISO/IEC/IEEE 21450 provides a common basis for members of the ISO/IEC/IEEE 21451 series of standards to be interoperable. It defines the functions that are to be performed by a TIM and the common characteristics for all devices that implement the TIM. It specifies the formats for TEDS. It defines a set of commands to facilitate the setup and control of the TIM as well as reading and writing the data used by the system. Application programming interfaces (APIs) are defined to facilitate communications with the TIM and with applications. ISO/IEC/IEEE 21451-1 defines a smart transducer object model and communication methods to facilitate the access of smart transducers in a network. ISO/IEC/IEEE 21451-2 defines serial interfaces for connecting transducer modules to a network processor. ISO/IEC/IEEE 21451-4 defines a mixed-mode transducer interface that allows the transfer of digital transducer electronic data sheet and analogue sensor signals on the same wires.