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Tractors and machinery for agriculture and forestry — Serial control and communications data network —

Part 13: File server

Tracteurs et matériels agricoles et forestiers — Réseaux de commande et de communication de données en série —

Partie 13: Serveur de fichiers

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 19, *Agricultural electronics*.

This third edition cancels and replaces the second edition (ISO 11783-13:2011), which has been technically revised.

The main changes are as follows:

— removal of support for short, 8.3 format, path and file names;

— addition of support for Unicode characters in path and file names;

— addition of clarifications to improve the implementation and testability of the file server protocol.

A list of all parts in the ISO 11783 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

ISO 11783 specifies a communications system for agricultural equipment based on the ISO 11898-2 protocol. SAE J1939 documents[1)], on which parts of ISO 11783 are based, were developed jointly for use in truck and bus applications and for construction and agriculture applications. Joint documents were completed to allow electronic units that meet the truck and bus SAE J1939 specifications to be used by agricultural and forestry equipment with minimal changes. General information on ISO 11783 can be found in this document.

The purpose of ISO 11783 is to provide an open, interconnected system for on-board electronic systems. It is intended to enable electronic control units (ECUs) to communicate with each other, providing a standardized system.

1) Society of Automotive Engineers, Warrendale, PA, USA.

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Tractors and machinery for agriculture and forestry — Serial control and communications data network —

Part 13: File server

1 Scope

The message set specified in this document is designed to support the needs of tractors and implements in using the services of a file server (FS).

An FS is a distinct control function (CF) on the mobile implement control system that enables all CFs to store or retrieve data from a file-based storage device.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 11783-1, *Tractors and machinery for agriculture and forestry — Serial control and communications data network — Part 1: General standard for mobile data communication*

ISO 11783-3, *Tractors and machinery for agriculture and forestry — Serial control and communications data network — Part 3: Data link layer*

ISO 11783-5, *Tractors and machinery for agriculture and forestry — Serial control and communications data network — Part 5: Network management*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11783-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
client
control function (CF) on the mobile implement bus that uses the services of the *file server* (3.5)

3.2
directory
file which stores administrative information about other *files* (3.3)

3.3
file
data object that stores data on a storage device

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3.4
file attribute
bit-coded information that defines the type and features of a *file* (3.3)

3.5
file server
FS
control function (CF) on the mobile implement bus that provides storage for *files* (3.3) and uses a set of commands for the handling of, and access to, these files

3.6
filename
name conforming to requirements of a character set, which identifies a file or *directory* (3.2)

Note 1 to entry: See Annex A for the character set.

3.7
Handle
data object used for accessing *files* (3.3) and *directories* (3.2)

3.8
hidden attribute
file attribute (3.4) indicating that the file should not appear in a directory listing

Note 1 to entry: A *client* (3.1) sets this attribute by using the file server (FS) commands.

3.9
path
specification of a *filename* (3.6) that may also include the directory name

3.10
read-only attribute
file attribute (3.4) used to prevent writing to, or deletion of, a file

Note 1 to entry: A *client* (3.1) sets this attribute by using the file server (FS) commands.

3.11
volume
directory (3.2) that refers to a specific logical or physical storage unit or space

Note 1 to entry: The primary volume is the volume used as current volume when the file server (FS) is started.

4 Requirements

4.1 General message format

The general message format uses the parameter group number as the label for a group of parameters in accordance with Annex C. Each of the parameters within the group can be expressed as characters, as scaled data defined by the ranges given in 4.2, or as one or more bits. Characters shall be transmitted with the left-most character first. Numerical parameters consisting of two or more data bytes shall be transmitted least significant byte (LSB) first. Individual parameters shall be in accordance with Annex B. When variable-length messages have eight or less data bytes, these messages shall be transmitted in a single controller area network (CAN) frame. When variable length messages have nine or more data bytes, the transport protocol (TP) or the extended transport protocol (ETP), in accordance with ISO 11783-3, is required. When a message has less than eight data bytes, the unused bytes shall be filled with FF_{16} values.

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