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Machinery for agriculture and forestry — Data interchange between management computer and process computers — Data interchange syntax

Machines agricoles et forestières — Transfert de données entre l'ordinateur de gestion et les ordinateurs de contrôle de process — Échange des données (syntaxe)

Reference number
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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 11787 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 19, *Agricultural electronics*.

Annexes A and B of this International Standard are for information only.

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Introduction

Stand-alone computers on the farm require that the same data must be manually collected from, and entered in, the different computers. This is a laborious task which becomes superfluous when the computers are interconnected and able to communicate with each other automatically to share and exchange information. Information exchange means data transport between the management computer on one side and each process computer on the other side.

NOTE 1 When in this text "process computer" is used, this can also be read as "datalogger".

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Machinery for agriculture and forestry — Data interchange between management computer and process computers — Data interchange syntax

1 Scope

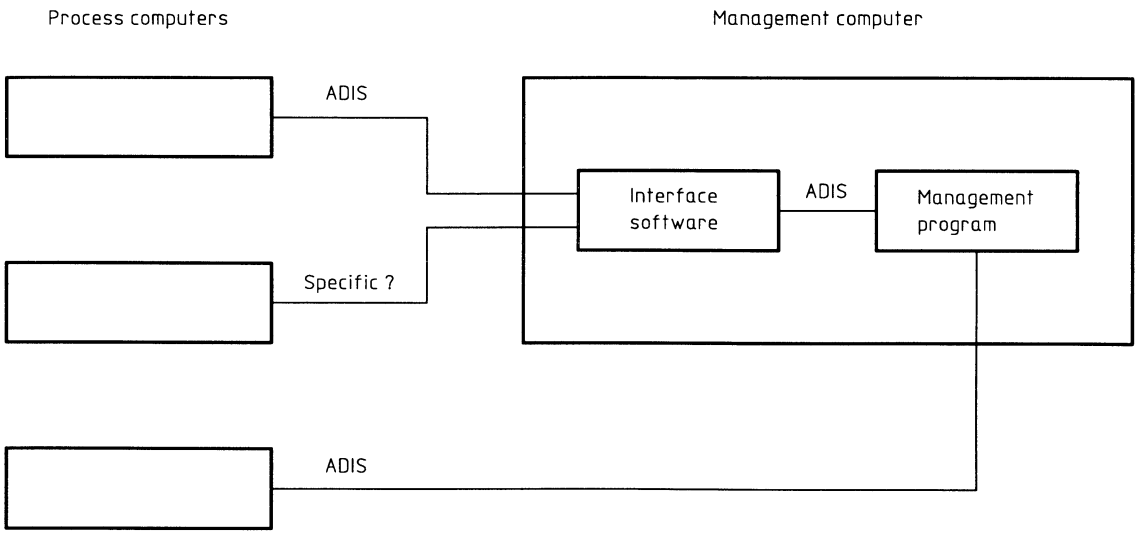
This International Standard provides the means to enable communication between on-farm process computers of stationary and mobile agricultural equipment or machinery, and management computers. It therefore specifies an Agricultural Data Interchange Syntax (ADIS), to exchange data electronically. It implies that the syntax is not intended for real-time data exchange.

ADIS may be used (see figure 1) for direct data exchange between process computer and management program.

ADIS may also be used for data exchange between process computer and interface software of the process computer on the PC.

Alternatively for this exchange, manufacturer-specific methods can be and are used for data exchange between the interface software for the process computer on the PC and the management program.

NOTE 2 This does not mean that ADIS cannot be used for other data interchange. Many farmers use a method similar to ADIS to exchange data between management computers and external computers: ADIS can be used for data interchange to external computers. ADIS can also be used to exchange data between independent software applications used on a management computer.



NOTE — Interface software is a communication program for the process computer that runs on the management computer. It takes care of the data exchange, and creates and reads the ADIS file(s).

Figure 1 — ADIS application possibilities

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 8601:1988, *Data elements and interchange formats — Information interchange — Representation of dates and times*.

3 Definitions

For the purposes of this International Standard, the following definitions apply.

3.1 ADIS; Agricultural Data Interchange Syntax: Syntax for data exchange between management computer and process computer on a farm.

3.2 alphanumeric data: Series of figures representing characters and whole numbers.

3.3 data dictionary: Database or list in which all data items are described in a unique way.

NOTE 3 Several data dictionaries can be used in ADIS. The use of a data dictionary is one of the starting points of ADIS (see also annex B).

3.4 data (dictionary) item: Item of the data dictionary, uniquely identified by a DDI number.

3.5 datalogger: Computer system to collect data about a process, but not to control the process itself.

3.6 DD number: Number that is used to identify a data item in a data dictionary with a 6-digit decimal code.

3.7 DDI number: Number that is used to identify a data dictionary item clearly in the ADIS file, with

— two leading zeros, followed by the data dictionary number (DD number);

— an identifier number;

— a number out of another data dictionary.

NOTE 4 The DDI number may contain additional information about the destination of the data item if it is sent through a CAN-bus.

3.8 management computer: Computer system in an agricultural enterprise used for management purposes.

3.9 management system: Programs and data bases on a management computer used for management purposes, but not for process control.

3.10 numerical data: Series of digits.

3.11 process computer: Computer system on an agricultural enterprise for process control purposes (milking, feeding, climate control, on-board computer, etc.).

4 General

4.1 The data to be exchanged between management computers and process computers shall be presented in standard files for data exchange on the management computer. The management system shall provide the programs for conversion of its data to or from the standard file for data exchange. The process computer system shall provide the programs for conversion of its data to or from the standard files for data exchange.

For data exchange the data needs to be known to both parties, and there needs to be a way to put the data in the standard exchange file: this is the syntax (ADIS).

NOTE 5 For background information, see annex A.

4.2 The following characters occur in this International Standard, to give a better description of the ADIS syntax:

<...> contains the description of an item;

[...] conditional (not mandatory) parts are put between square brackets;

(...) parts between parentheses can occur a number of times repeatedly, at least once.

EXAMPLE

DN(<DDI-no><field length><resolution>) means that the combination of a DDI number, its field length and resolution can occur a number of times.

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