



International
Standard

ISO 23316-6

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**Tractors and machinery for
agriculture and forestry —
Electrical high-power interface 700
V DC / 480 V AC —**

**Part 6:
Communication signals**

*Tracteurs et matériels agricoles et forestiers — Interface
électrique haute puissance 700VDC/480VAC —*

Partie 6: Signaux de communication



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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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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 document 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).

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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*.

The document is intended to be used in conjunction with the ISO 11783 series and the other parts of ISO 23316.

A list of all parts in the ISO 23316 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.

Introduction

Due to the requirements of modern agriculture, the precise control of implement functions is a key issue in agricultural technology. The required precision is difficult to achieve with mechanical or hydraulic devices; it is more efficient to provide control with electric and electronic means, i.e. electric power and ISOBUS. The use of electric power allows implement manufacturers to offer farmers improved implements that provide a higher degree of automation and navigation, resulting in greater precision, better power distribution, and better controllability.

The purpose of the ISO 23316 series is to provide a design and application standard covering implementation of electrical high-power interfaces operating with a nominal voltage of 700 V DC/480 V AC for manufacturers of agricultural machinery.

The ISO 23316 series specifies the physical and logical interface requirements that provide interoperability and cross compatibility for systems and equipment.

Conformance to the ISO 23316 series means all applicable requirements from ISO 23316-1 to ISO 23316-7 are met.

It is permitted for partial systems or components to conform to the ISO 23316 series by applying all applicable requirements, for example, for the plug, receptacle, or inverters, on a tractor or an implement.

NOTE 1 If a DC-mode only HPI is provided, it is not necessary to conform with ISO 23316-4 which describes AC-mode, as it is not applicable. If an AC-mode only HPI is provided, it is not necessary to conform with ISO 23316-5 which describes DC-mode, as it is not applicable.

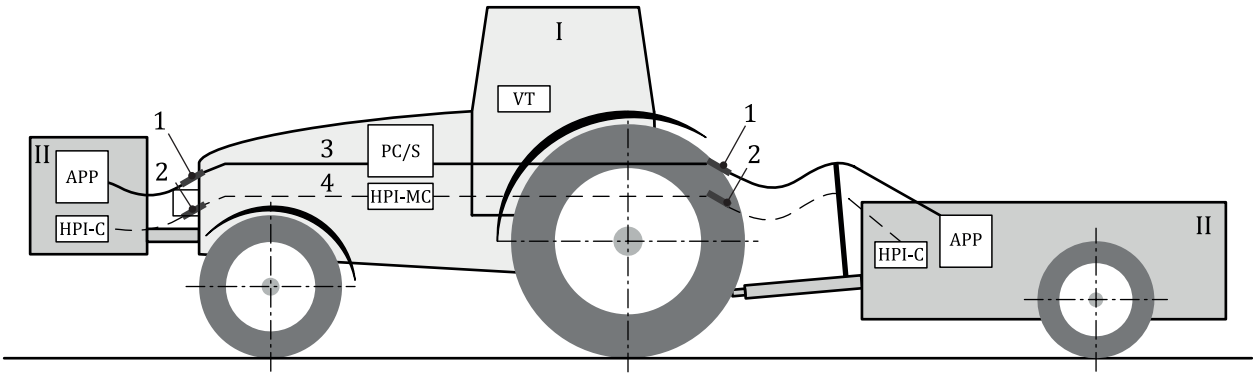
The ISO 23316 series defines an interface between a power providing device (supply system) and a power consuming device (consumer system), used within an automated electrified system in the agricultural industry. This series deals with electrical, mechanical and bus communication objectives and is used in conjunction with ISO 11783, which defines the ISOBUS. [Figure 1](#) portrays the elements of typical equipment that involve the high-power interface.

The following aspects are not within the scope of ISO 23316:

- service, maintenance, and related diagnostics;
- functional safety;
- control strategies for high-power supplies and loads;
- application-specific strategies and operational modes;
- component design;
- energy storage systems, e. g. supercapacitors or batteries;
- multiple electrical power supplies to a common DC link.

NOTE 2 [Annex D](#) lists some basic diagnostics by DTCs.

NOTE 3 For example, AEF guideline 007 handles some aspects of functional safety already.



Key

Symbol

APP	application
PC/S	power converter/switch
HPI-C	high-power interface - control
HPI-MC	high-power interface - master control
VT	virtual terminal (user interface)
I	supply system
II	consumer system

Symbol

1	high-power interface
2	ISOBUS connector
3	power lines
4	ISOBUS
————	power connection
-----	signal connection

Figure 1 — Typical elements of system incorporating a high-power interface