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Tractors and machinery for agriculture and forestry — Auxiliary-power-transmission connector for the operator station

Tracteurs et matériels agricoles et forestiers — Connecteur de transmission d'énergie auxiliaire au poste de l'opérateur

Reference number
ISO 17612:2004(E)

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Foreword

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ISO 17612 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 4, *Tractors*.

Introduction

This International Standard specifies an electrical connector for the transmission of auxiliary power within the operator station of enclosed agricultural machines. The specification thus established will allow manufacturers to provide both individual and multiple outlets in the cab. Typical applications include monitors, light-duty controllers, remote operating devices and miscellaneous off-the-shelf items. Only the application dimensions and electrical characteristics are covered.

Other electrical transmission connectors for agricultural tractors and machinery are specified in ISO/TR 12369. For this and other International Standards dealing with connectors for electrical power transmission from tractor to implement or other means, see the Bibliography.

Tractors and machinery for agriculture and forestry — Auxiliary-power-transmission connector for the operator station

1 Scope

This International Standard specifies the essential interface dimensions of a connector and its plug for the transmission of 12 V electrical power within the enclosed operator station of agricultural tractors and machinery. The device is intended to be used as a non-environmentally sealed, convenient source for power auxiliary devices, providing a means for the operator to obtain electrical power without altering the tractor/machine electrical wiring harness. The maximum current capacity of the specified device is 30 A: it is not applicable to any other voltage system (6 V or 24 V).

2 Normative references

The following referenced documents are indispensable for the application 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 2768-1, *General tolerances — Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
contact
current-carrying element of the connector, either male or female

3.2
pin
male contact

3.3
contact socket
female contact

3.4
power strip socket
female half of the connector, integral to the power strip

3.5
power strip plug
male half of the connector, attached to the device to be powered

3.6
connector
complete mated assembly containing socket, plug, pins and contact sockets

3.7
power strip
connector containing one or more distribution positions

3.8
switched current
electrical current path containing a switching component between battery and power strip

3.9
un-switched current
electrical current path having an uninterrupted current path between battery and power strip

3.10
auxiliary device
device attached to the power strip plug

EXAMPLE Monitor, controller, communication device, computer.

4 Requirements

4.1 Dimensional requirements

4.1.1 Power strip socket

The connector shall consist of a base containing one or more sockets.

Each socket shall be covered with a lid, which shall be spring-loaded to close or have a detent to hold it in the closed position. The lid shall have symbols defining the contact positions and their respective use.

A typical example is shown in Figure 1, for reference purposes only.

The socket and pin spacing dimensions shall be in accordance with Figure 2.

Female contacts shall be of at least a tin-plated material designed to mate with the male contacts specified in Figure 3.

4.1.2 Power strip plug

Critical outside dimensions of the power strip plug shall be in accordance with Figure 4 to allow typical mating with the power strip socket.

Dimensions in millimetres

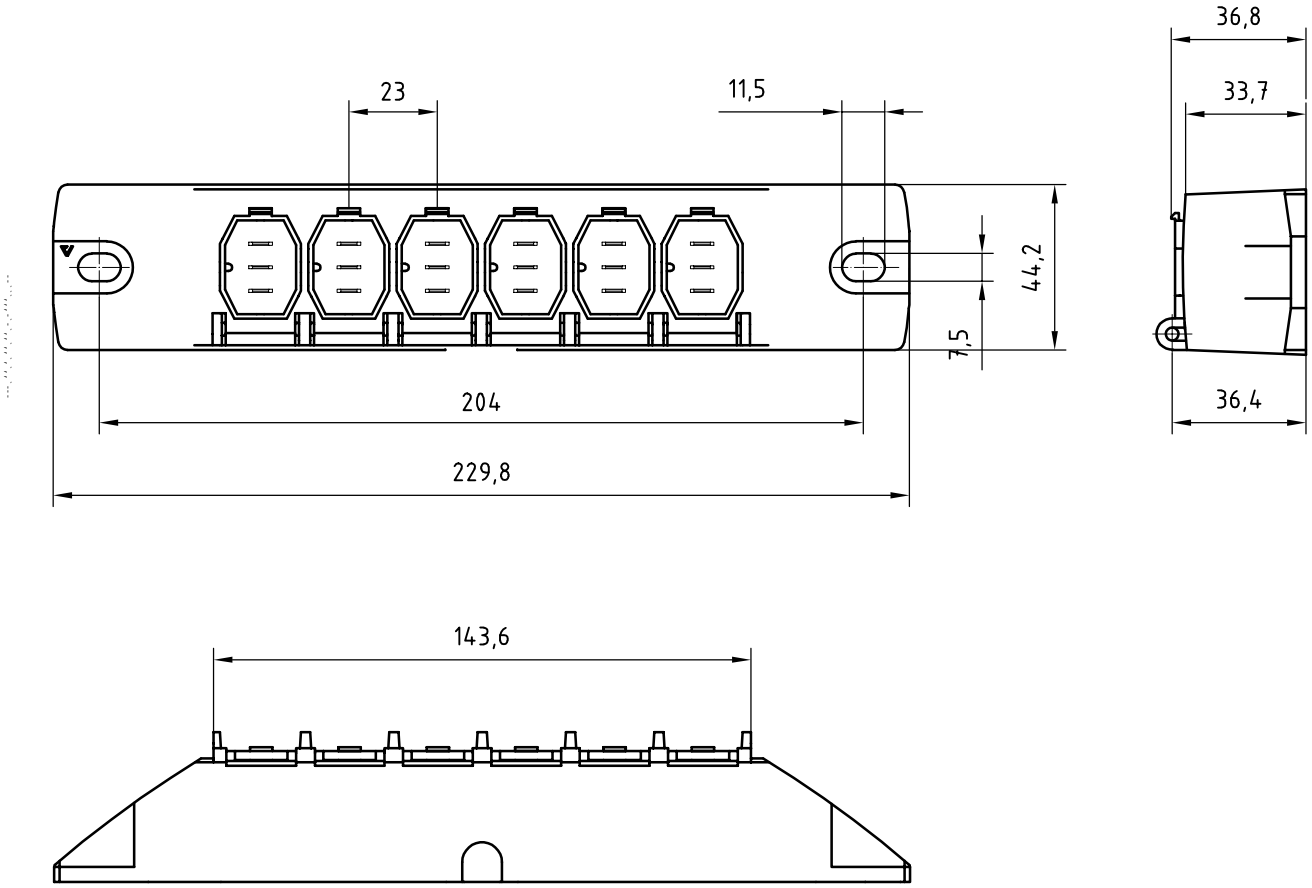

Figure 1 — Typical power strip socket (for information only)

Dimensions in millimetres,
tolerances in accordance with ISO 2768-m

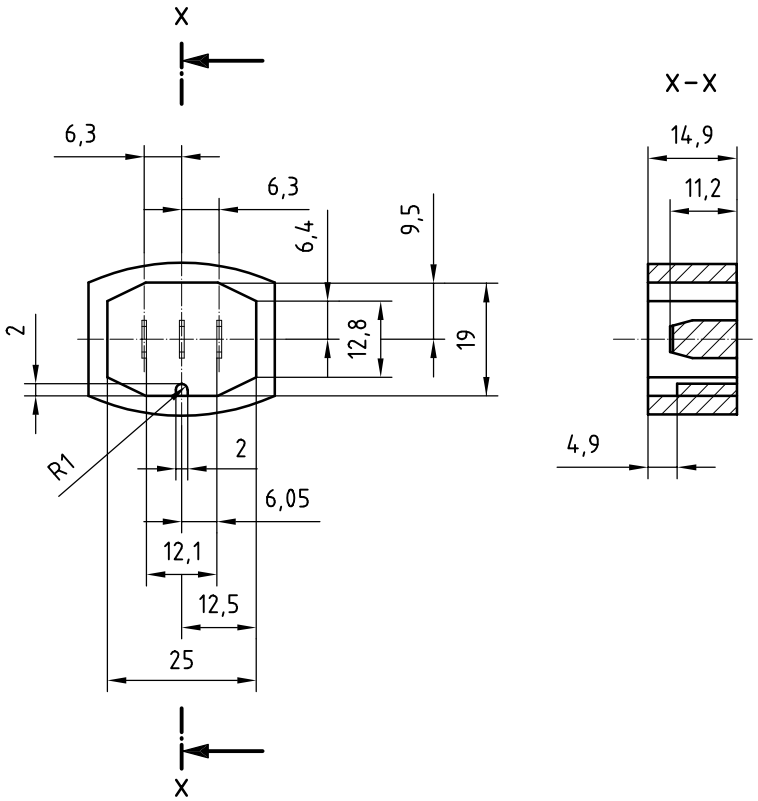

Figure 2 — Socket and pin spacing dimensions

Dimensions in millimetres,
tolerances in accordance with ISO 2768-m

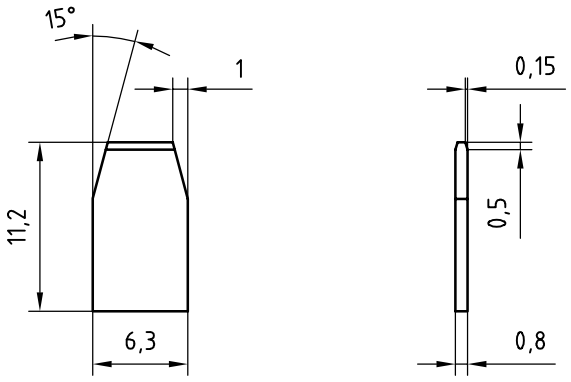

Figure 3 — Male contacts of power strip plug

Dimensions in millimetres,
tolerances in accordance with ISO 2768-m

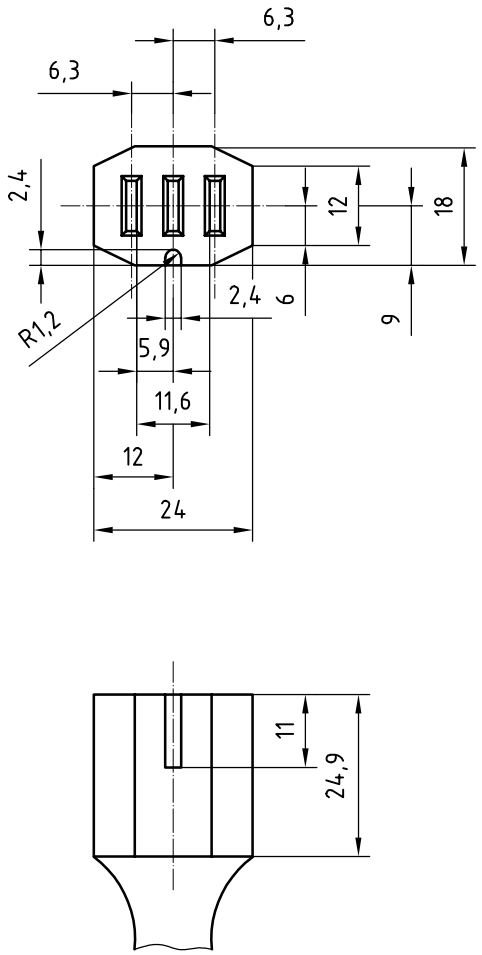

Figure 4 — Power strip plug

4.2 Electrical requirements

4.2.1 Voltage

There shall be a nominal voltage of +12 V d.c. at Contacts A and C, with reference to Contact B, at the vehicle rated engine speed. See Table 1.

4.2.2 Current

The “sum” of the switched and unswitched current at any one connector (socket) shall be specified to be a maximum of 30 A. Total current draw of a multiple connector power strip shall not exceed 30 A.

4.2.3 Contact electrical requirements

Circuit protections of Contacts A and C shall be provided based on the maximum current capacity of the electrical circuit (sourced from an electrical distribution centre) and shall not exceed 30 A.

Contact B shall have a dedicated electrical path direct to a convenient termination point near, or at, the frame ground point of the battery.

4.2.4 Contact layout and function

The layout of the contacts shall be as shown in Figures 2, 3 and 4.

Contacts shall have contact designation, symbol and function in accordance with Table 1.

Table 1 — Contact designation, function and symbol

Contact designation	Function	Symbol
Contact A	Unswitched +12 V d.c.	A
Contact B	Negative battery reference (Ground)	B
Contact C	Switched +12 V d.c.	C

Bibliography

[1] ISO 1724, *Road vehicles — Connectors for the electrical connection of towing and towed vehicles — 7-pole connector type 12 N (normal) for vehicles with 12 V nominal supply voltage*

[2] ISO 8092-2, *Road vehicles — Connections for on-board electrical wiring harnesses — Part 2: Definitions, test methods and general performance requirements*

[3] ISO 8935, *Tractors for agriculture and forestry — Mountings and apertures for external equipment controls*

[4] ISO/TR 12369, *Agricultural tractors and machinery — Electrical power transmission connectors*

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