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International

ISO 19014-4

Earth-moving machinery — Functional safety —

Part 4: Design and evaluation of software and data transmission for safety-related parts of the control system

Engins de terrassement — Sécurité fonctionnelle —

Partie 4: Conception et évaluation du logiciel et de la transmission des données pour les parties du système de commande relatives à la sécurité

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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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This document was prepared by ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 2, *Safety, ergonomics and general requirements,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 151, *Construction equipment and building material machines - Safety,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition of ISO 19014-4 cancels and replaces the first edition (ISO 19014-4:2020), which has been technically revised.

The main change is as follows:

— referenced standards have been dated.

A list of all parts in the ISO 19014 series can be found on the ISO website.

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This document addresses systems comprising any combination of electrical, electronic, and programmable electronic components [electrical, electronic, and programmable electronic systems (E/E/ PES)] used for functional safety in earth-moving machinery.

The structure of safety standards in the field of machinery is as follows.

Type-A standards (basic standards) give basic concepts, principles for design, and general aspects that can be applied to machinery.

Type-B standards (generic safety standards) deal with one or more safety aspects, or one or more types of safeguards that can be used across a wide range of machinery.

— Type-B1 standards on particular safety aspects (e.g. safety distances, surface temperature, noise).

— Type-B2 standards on safeguards (e.g. two-hands controls, interlocking devices, pressure sensitive devices, guards).

Type-C standards (machinery safety standards) deal with detailed safety requirements for a particular machine or group of machines.

This document is a type-C standard as stated in ISO 12100:2010.

This document is of relevance, in particular, for the following stakeholder groups representing market players with regard to machinery safety:

— machine manufacturers (small, medium, and large enterprises);

— health and safety bodies (regulators, accident prevention organisations, market surveillance etc.).

Others can be affected by the level of machinery safety achieved in accordance with this document:

— machine users and employers (small, medium, and large enterprises);

— machine users and employees (e.g. trade unions, organizations for people with special needs);

— service providers, e. g. for maintenance (small, medium, and large enterprises);

— consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

The machinery concerned and the extent to which hazards or hazardous events are covered are indicated in the Scope of this document.

When the requirements of this type-C standard are different from those in type-A or type-B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

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