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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 38874.3-2020

**Tractors and machinery for agriculture and forestry -
Safety-related parts of control systems - Part 3: Series
development, hardware and software**

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Foreword

GB/T 38874 "Safety Related Components for Agriculture, Forestry Tractors and Machinery Control Systems" is divided into the following 4 parts.

---Part 1.General Rules for Design and Development;

---Part 2.Concept stage;

---Part 3.Development of hardware and software series;

---Part 4.Production, operation, modification and support procedures.

This part is Part 3 of GB/T 38874.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

This part uses the translation method to be equivalent to the ISO 25119-3:2018
"Agricultural Forestry Tractor and Machinery Control System Safety Related Parts

Part 3.Development of hardware and software series.

This part is proposed by China Machinery Industry Federation.

This part is under the jurisdiction of the National Agricultural Machinery Standardization
Technical Committee (SAC/TC201).

This section was drafted by. China Yituo Group Co., Ltd., Beijing Xingkedi Technology Co.,
Ltd., open unmanned farm engineering technology (Jiang

Su) Co., Ltd., Anhui Wojiesi Automobile Technology Co., Ltd., Beijing Hezhong Sizhuang
Technology Co., Ltd., China Agricultural Mechanization Scientific Research Institute

Research Institute, Henan University of Science and Technology.

1 Scope

This part of GB/T 38874 specifies the general rules for the design and development of
software and hardware for safety-related components of control systems (SRP/CS). This
section

Suitable for agricultural and forestry tractors, agricultural self-propelled machinery, agricultural full- and semi-hanging machinery, agricultural traction machinery, and also for municipal machinery (for example. road

Road sweeper).

This section does not apply to.

--- Agricultural aircraft and agricultural aircraft;

---Lawn and garden equipment.

This part specifies the characteristics and categories required by SRP/CS to perform safety-related functions. This part does not specify the characteristics for specific occasions.

Energy level.

Note 1. Machinery-specific category C standards may specify agricultural performance levels (AgPL) for machinery safety-related functions within its scope. Otherwise, the AgPL specifications are made by

The manufacturer is responsible.

This section applies to electrical/electronic/programmable electronic system (E/E/PES) safety components related to electromechanical systems. This section covers

Covers possible dangers caused by faulty behavior of E/E/PES safety-related systems (including the interaction between these systems). This section does not involve touching

Electricity, fire, smoke, high temperature, radiation, toxicity, flammability, chemical reactivity, corrosion, energy release and other related hazards, unless directly by E/E/PES

Caused by a malfunction of the safety system. This section also covers the failure behavior of E/E/PES safety-related systems under non-E/E/PES hazards, involving

Protective measures, safeguards or safety-related functions.

This section contains examples within the following scope.

---SRP/CS limits the current in the electric hybrid system to prevent insulation failure/risk of electric shock;

---SRP/CS electromagnetic interference;

---Fire protection design of SRP/CS.

This section does not include examples in the following scope.

--- Friction causes insulation failure due to electric shock hazard;

---Electromagnetic radiation affecting nearby machine control systems;

--- Overheating caused by corrosion.

This section does not apply to non-electrical/electronic/programmable electronic systems (E/E/PES) (for example. hydraulic, mechanical or pneumatic).

Note 2.Refer to ISO 12100 for the design principles of machine safety.

This section does not apply to safety-related components of control systems manufactured before the implementation date.

2 Normative references

The following documents are essential for the application of this document. For dated reference documents, only the dated version applies to this article

Pieces. For the cited documents without date, the latest version (including all amendments) applies to this document.

GB/T 38874.1-2020 Agriculture and Forestry Tractors and Machinery Control System
Safety Related Parts Part 1.General Rules for Design and Development

(ISO 25119-1:2018, IDT)

GB/T 38874.2-2020 Agriculture and Forestry Tractors and Machinery Control System
Safety Related Parts Part 2.Concept Stage