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**Industrial robots - Operation and maintenance - Part 2: Fault  
diagnosis**

工业机器人 运行维护 第2部分：故障诊断

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## Foreword

This document was issued on 7 September 2023 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 April 2024.

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This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document is Part 2 of GB/T 42983 "Industrial Robot Operation and Maintenance".  
GB/T 42983 has released the following parts.

---Part 1. Online monitoring;

---Part 2. Troubleshooting;

---Part 3. Health Assessment;

---Part 4. Predictive maintenance.

Please note that some content in this document may be subject to patents. The publisher of

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This document was drafted by. Tianjin University, Beijing Institute of Machinery Industry Automation Co., Ltd., Ministry of Industry and Information Technology Electronics Fifth Research

Institute, Aobo (Jiangsu) Robot Co., Ltd., Xi'an Jiaotong University, Beijing University of Technology, Wuhu Ruisi Robot Co., Ltd., Tianjin Tyson

CNC Technology Co., Ltd., Jilin University, Eft Intelligent Equipment Co., Ltd., Beijing University of Chemical Technology, Foshan Wasu Robot Co., Ltd.

The company has

Co., Ltd., Zhejiang Qianjiang Robot Co., Ltd., Foshan Longshen Robot Co., Ltd., Tsinghua University, Harbin Institute of Technology Robot (Hefei) International Innovation

Research Institute, Hangzhou Yiheng Technology Co., Ltd., Shenyang Xinsong Robot Automation Co., Ltd., Shanghai Jiao Tong University, Huazhong University of Science and Technology,

KUKA Robot (Shanghai) Co., Ltd., Dongguan Liqun Automation Technology Co., Ltd., Changzhou Inspection and Testing Standards Certification Research Institute.

Drafters of this document. Wang Guofeng, Lei Yaguo, Wang Yuanhang, Yang Shuping, Tang Jing, Mei Jiangping, Wang Taiyong, Wu Xing, Li Naipeng, Zhou Jian, Hu Mantang,

Wang Peng, Zhang Xudong, Yang Kai, Guo Shuyan, Xiao Yongqiang, Song Zhongkang, Wang Huaqing, Xu Yonggang, Cui Lingli, He Jialong, Li Guofa, Tang Gang, Yi Tinghao,

Liu Lei, Cao Junyi, Wang Yong, Ning Nanbei, Zhou Wenbiao, Wu Di, Wang Tianyang, Xu Bin, Wu Tonghai, Lu Na, Ding Xiaojian, Wang Chunhui, Wu Jun, Pan Guangze,

Wang Ji, Yang Jianfeng, Li Xiaobing, Huang Chuangmian, Shang Bin, Hu Xianghong, Lu Shuhan, Zhao Changjun, Zhou Xing, Tao Jianfeng, Yang Yunfan, Guo Guangkuo, Meng Linghui,

Mo Wen'an, Chen Bochen, Peng Xiangtao, Zhang Jianhua, Zhang Feng, Xu Xiaodan, Wang Hong, Guan Zhigang.

## Introduction

Industrial robots are irreplaceable and important equipment in advanced manufacturing and play an important role in supporting intelligent manufacturing and improving production

efficiency.

To work. Problems such as lack of industrial robot operation and maintenance standards, lag, and lack of systematicity will lead to difficulties in unifying technical requirements and insufficient product quality.

The lack of guarantee affects the rapid development of the industry.

GB/T 42983 "Industrial Robot Operation and Maintenance" carries out operation and maintenance by monitoring the status of industrial robots to improve industrial robots

It is planned to be composed of four parts to ensure operational reliability, protect user interests, and enhance the value of industry maintenance services.

---Part 1. Online monitoring. The purpose is to standardize and determine the terminology, monitoring parameter types, and monitoring items for online monitoring of industrial robots.

objectives and monitoring methods, etc.

---Part 2. Troubleshooting. The purpose is to standardize and determine the industrial robot fault diagnosis process, online fault alarm and offline testing.

Try waiting.

---Part 3. Health Assessment. The purpose is to standardize and determine the health assessment process, health assessment system and health assessment of industrial robots

Methods etc.

---Part 4. Predictive maintenance. The purpose is to standardize and determine the objects, prediction methods, and maintenance plans of industrial robot predictive maintenance.

planning and management processes, etc.

Industrial robot operation and maintenance

Part 2. Troubleshooting

## 1 Scope

GB/T 42983.2-2023 covers fault diagnosis on industrial robots in service, as the second part of GB/T 42983 on robot operation and maintenance. Clause 4 lays out the fault diagnosis process. Clause 5 deals with online fault alarms and divides them by where the evidence comes from: signals already travelling on the control bus, and signals from sensors added to the machine for the purpose. Clause 6 covers offline testing and diagnosis, with its own process, the testing itself and the diagnosis that follows. Appendix A, informative, gathers information on control abnormal alarm mechanisms. Terms are taken from GB/T 2298-2010 and GB/T 19873.2-2009. That split matches the situation a maintenance team actually faces: a robot still running in the cell has to be judged from data

the controller is already producing, while a robot taken out of production can be instrumented and exercised deliberately, and the introduction to the series notes that missing and unsystematic operation and maintenance standards have left technical requirements hard to unify. Useful to robot integrators, plant maintenance engineers, and service organisations writing diagnostic procedures for installed fleets.

This document stipulates the industrial robot fault diagnosis process, online fault alarm, offline test and diagnosis, etc.

This document is suitable for fault diagnosis of industrial robots.

## 2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations

For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to

this document.

GB/T 2298-2010 Mechanical vibration, impact and condition monitoring vocabulary

GB/T 19873.2-2009 Machine condition monitoring and diagnosis Vibration condition monitoring Part 2.Vibration data processing, analysis and

describe

GB/T 22394.1-2015 Machine condition monitoring and diagnostic data interpretation and diagnostic technology Part 1.General principles

GB/T 25889-2010 Acoustic emission for machine condition monitoring and diagnosis

GB/T 29716.1-2013 Mechanical vibration and impact signal processing Part 1.Introduction

GB/T 42983.1-2023 Industrial robot operation and maintenance Part 1.Online monitoring

## 3 Terms and definitions

The following terms and definitions as defined in GB/T 2298-2010 and GB/T 19873.2-2009 apply to this document.

### 3.1

fault fault

A state in which a system or component cannot perform a specified function.

### 3.2