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Intelligent level requirements and evaluation methods of industrial instruments

工业仪表智能化等级要求与评价方法

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Foreword

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Drafting.

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Introduction

Intelligent instruments for industrial process measurement and control, including measuring instruments (temperature, pressure, level, flow, etc.), analyzers Meters (water quality, gas, etc. analyzers), actuators (electric/electro-hydraulic actuators, pneumatic/gas-hydraulic actuators and their matching valve positioners), etc.

With the application of microprocessor technology, digital signal processing or control technology, field bus and industrial Ethernet and other network communication technologies, intelligent instruments The watch has gone through the development path of digitalization, networking and intelligence, and provides users with multiple functions such as calibration, diagnosis, positioning, decision-making, etc.

This has greatly promoted the application effect and service quality of smart meters, but there are currently no standards and related tests for the intelligence level of smart meters.

Evaluation methods make it difficult to clarify requirements during procurement and

deployment, which is the background and purpose of this document.

At present, some standards have proposed the general functions of intelligent instruments, including self-diagnosis, self-adaptation, self-deduction, self-learning, etc.

The functions of smart meters are usually described qualitatively, but the technical characteristics of smart meters are not fully described.

Full integration, especially for automatic configuration, interoperability and other requirements, the operability of the standard content is insufficient. Therefore, this document is based on the intelligent instrument The basic capabilities (data processing and communication) for achieving intelligence are divided into four levels, namely ontological intelligence, basic intelligence, and system intelligence.

and autonomous intelligence, and defines the content and characteristics of different intelligence levels, and provides standards and technical requirements corresponding to different intelligence characteristics.

It effectively supports the evaluation of the intelligence level of smart instruments.

Different industries have different understandings of intelligence, but data and communication, as the foundation of intelligence, are in line with international With the development of technology, when innovative technologies that are not covered in this document appear in the intelligentization of industrial instruments, this document It will be revised in a timely manner to encourage the orderly development of innovative technologies.

Requirements and evaluation methods for intelligent level of industrial instruments

1 Scope

This document specifies the intelligent level and intelligent feature requirements of industrial instruments (hereinafter referred to as instruments), describes the intelligent feature evaluation method and Intelligent evaluation method.

This document applies to measuring instruments (temperature, pressure, level, flow, etc.), analytical instruments (water quality, gas, etc.), Intelligent level evaluation of instruments such as electric/electro-hydraulic actuators, pneumatic/gas-hydraulic actuators and their matching valve positioners.

2 Normative references

GB/T 18271.4-2017

GB/T 34049-2017

GB/T 34050-2017