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Förutseende underhåll av industriell automationsutrustning och system – Del 1: Generella fordringar

*Predictive maintenance of industrial automation equipment and systems –
Part 1: General requirements*

Som svensk standard gäller europastandarden EN IEC 63270-1:2025. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 63270-1:2025.

Nationellt förord

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English Version

**Predictive maintenance of industrial automation equipment and
systems - Part 1: General requirements
(IEC 63270-1:2025)**

Maintenance prédictive des équipements et systèmes
d'automatisation industrielle - Partie 1: Exigences générales
(IEC 63270-1:2025)

Vorausschauende Instandhaltung von Geräten und
Systemen für die industrielle Automatisierung - Teil 1:
Allgemeine Anforderungen
(IEC 63270-1:2025)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 65E/1148/FDIS, future edition 1 of IEC 63270-1, prepared by SC 65E "Devices and integration in enterprise systems" of IEC/TC 65 "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 63270-1:2025.

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The text of the International Standard IEC 63270-1:2025 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 60300-3-2:2004	NOTE	Approved as EN 60300-3-2:2005 (not modified)
IEC 61360-6:2016	NOTE	Approved as EN 61360-6:2017 (not modified)
IEC 61508-2	NOTE	Approved as EN 61508-2
IEC 61508-3	NOTE	Approved as EN 61508-3
IEC 61804-2	NOTE	Approved as EN IEC 61804-2
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IEC 63278-1	NOTE	Approved as EN IEC 63278-1

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC/TR 62390	-	Common automation device - Profile guideline	-	-
ISO/IEC/IEEE 42010	2022	Software, systems and enterprise - Architecture description	-	-



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Edition 1.0 2025-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Predictive maintenance of industrial automation equipment and systems –
Part 1: General requirements**

**Maintenance prédictive des équipements et systèmes d'automatisation
industrielle –
Partie 1 : Exigences générales**

INTERNATIONAL
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**PREDICTIVE MAINTENANCE OF INDUSTRIAL
AUTOMATION EQUIPMENT AND SYSTEMS –****Part 1: General requirements****FOREWORD**

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IEC 63270-1 has been prepared by subcommittee SC 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial process measurement, control and automation. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
65E/1148/FDIS	65E/1159/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 63270 series, published under the general title *Predictive maintenance of industrial automation equipment and systems*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

Efficient production significantly depends on the availability of production equipment. The status of the equipment and its components, further referred to as “assets” can be monitored and assessed in order to guarantee the intended usage of equipment and to avoid unplanned downtimes. The results of the predictive maintenance assessment are, for example, the remaining useful lifetime prediction, necessary maintenance activities, etc. The results can also lead to the optimization of production workflow by targeting the reorganization of equipment usage. The work process of PM (predictive maintenance) is depicted in Figure 1.

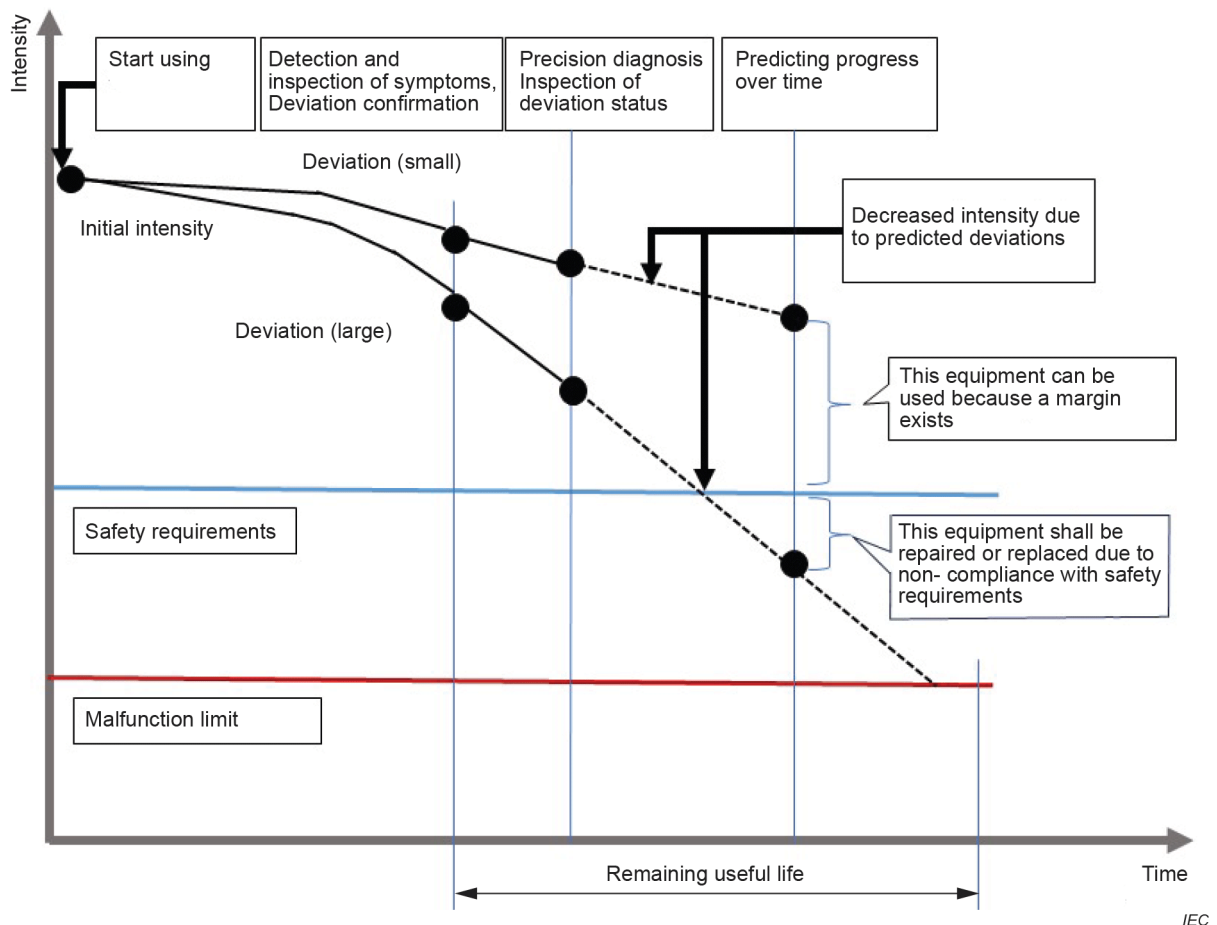


Figure 1 – Predictive maintenance work process

The availability of status information is the main prerequisite for such a prediction. Modern automation equipment is often equipped with sensors and self-monitoring capabilities. These functions can gather data that can be used to determine the status of the equipment. However, the equipment is delivered from different suppliers and is based on different technologies. Therefore, there is currently no uniform solution for accessing the data and calculating status information. Access to data is a prerequisite for predictive maintenance solutions. Therefore, an integration project is often an integral part of the solution. This significantly hinders efforts to implement solutions for predictive maintenance.

In addition, standards can define the definition, scope, procedure, and functional structure of PM, as well as the relationship between PM and CBM. In predictive maintenance, industrial automation equipment and systems play two different roles: "measuring tool" and "object of prediction". Condition monitoring, fault diagnosis and remaining useful life prediction methods can be based on a data-driven model, a mechanism-based model, or both. Without standardization, it is difficult to maintain accuracy and be able to compare the PM results.

From the description above, a need for standardization can be deduced. Providing an appropriate method and infrastructure, comprised of a uniform ontology, predictive methods, and system interfaces. Such an approach will facilitate the easy composition of complex condition monitoring and predictive maintenance solutions. It will also provide critical information for equipment and factories based on original data and analytical methods.

PREDICTIVE MAINTENANCE OF INDUSTRIAL AUTOMATION EQUIPMENT AND SYSTEMS –

Part 1: General requirements

1 Scope

This part of IEC 63270 provides guidance on the functional structure model, procedure, method, interface of function blocks. It also offers guidance on data requirements for predictive maintenance of equipment, devices and systems for industrial automation applications.

Condition monitoring is not only within the scope of this document but can also be an important input for predictive maintenance.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC TR 62390, *Common automation device – Profile guideline*

ISO/IEC/IEEE 42010:2022, *Software, systems and enterprise – Architecture description*