



SIEMENS



Pattern specification

Engineering Standard

for electrical equipment
of machines and systems

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Preface / field of application

This document describes the basic technical regulations and requirements of the customer for the procurement, design and scope of the components, devices, automatic control engineering and mechanical components for electrical equipment of machines and systems.

The specification **does not describe all** implementation details but only specifies those which are particularly important according to existing experience.

Clearly specified delivery specifications have the purpose of facilitating extensive negotiations between business partners. In the interests of the end user, the machine manufacturers, their suppliers and sub-suppliers, clarification is to be provided about the technical design, so that switching equipment can be supplied in the desired version, the required safety measures are taken for humans and production means, outages of the production means can be resolved as rapidly as possible and an optimum service life is attained for the production means designed according to these guidelines.

The following persons are addressed with this document:

User	Customer, user, end user
Machine manufacturer	Supplier who places on the market the entire machinery / system within the meaning of the EU Machinery Directive 2006/42/EC (incl. the Low-Voltage Directive 2014/35/EU) and therefore responsible for the EU Declaration of Conformity.
Design engineer	The manufacturer of the machine / system or a service provider contracted by them (e.g. engineering office).
Producer of electrical equipment	Service provider for the manufacturing of parts of the electrical equipment of a machine / system (e.g. switchgear) which cannot be operated independently.
Supplier	Supplier of devices which are combined into a functional unit in the electrical equipment.

Put in highly simplified terms, the supplier / manufacturer is responsible for the drawing up the Declaration of Conformity. To what extent the responsibilities are passed on along the supply chain depends on the guidelines applied. Therefore it has to be clearly agreed in advance between the persons involved who takes on which role (hazard analysis / safety analysis / risk analysis and risk assessment, conformity evaluation, provision or availability of different documents).

The contractor must be familiar with the content of this document and provide all information which does not fall under this specification and which is required by the supplier to work properly, safely and in accordance with the project requirements.

The general guidelines also specify which information or documents are required by the contractor to work without avoidable queries.

The design engineer selects the components of the preferred suppliers of the customer which are defined in the material release list. If a person has a reasonable requirement for a deviation from the content of this document (e.g. none of the listed components can fulfil

the function of the product equipment) they have to reach a written agreement with the customer.

Superordinate regulations and standards

2.1 Directives

The manufacturer is responsible for ensuring that the product they place on the market fulfills the relevant safety objectives. Within the European Economic Area, this is achieved by ensuring compliance of the product with the relevant directive.

The supplier must design, construct or modify the electrical system in accordance with the following directives:

- Directive 2014/35/EU – Low Voltage Directive
- A CE marking in accordance with the Low-Voltage Directive has to be possible.
- The compliance with other directives (Machinery Directive, EMC, RED) can be required.
- All electrical components, modules and enclosures must be fulfill the requirements of these specifications and correspond to the minimum requirements of the relevant directives and standards or exceed them.

2.2 Standards

To attain conformity with the corresponding basic requirements of the Low-Voltage Directive, manufacturers and suppliers should apply the following standard as the minimum requirement:

- IEC 60204-1 – Safety of Machinery - Electrical Equipment of Machinery – Part 1: General requirements

As a result of a risk evaluation the manufacturer should use technical rules, for example those of the IEC 61439-1 and -2, as a supplementary design aid.

Additional notes can be found in the "Reference Manual: Implementing control cabinets in compliance with IEC and EU Directives" (<https://new.siemens.com/global/en/markets/panel-building/eu-directives.html>).

Requirements beyond the listed standards are explained in this document.