

Switchgear and controlgear assembly documentation

Requirements of the documentation in accordance with:

IEC 60204-1 – Electrical equipment of machines

IEC 61439-1 – Low-voltage switchgear and controlgear assemblies

Switchgear and controlgear assembly documentation

Requirements according to DIN EN 60204-1

The *information that is required for setting up, operating, and servicing a machine's electrical equipment* must be supplied *in a suitable format*.

The information must be *in an agreed language*.

The form of information provided may vary depending on the complexity of the electrical equipment delivered. For very simple equipment, the corresponding information may be contained within a single document, provided that this document shows all the devices of the electrical equipment and enables connections to be established to the power supply.

REMARK: The technical documentation that is provided with parts of the electrical equipment can form part of the documentation for the machine's electrical equipment.

Switchgear and controlgear assembly documentation

Requirements according to DIN EN 60204-1

- Comprehensive description of the equipment
- Operating manual, manual for servicing
- Parts list
- Notes on setup / mounting / connecting to the power supply
- Where applicable: details on the physical environment, overview (block) circuit diagrams, programming, monitoring intervals, for example
- Circuit diagram
- Description of protective equipment (locked functions for machines coordinated to work together, etc.)
- Technical protective measures
- Information on handling, transport and storage

Switchgear and controlgear assembly documentation

Requirements according to DIN EN 61439-1

- All identifying characteristics of the switchgear and controlgear assembly must be contained within the technical documentation
- Notes on transport, handling, installation, operation, and servicing
- Identification of devices, components, electrical circuits (parts lists, assembly drawings, circuit diagrams, and terminal diagrams)

Note: No separate requirements for power switchgear and controlgear assemblies (DIN EN 61439-2)

Switchgear and controlgear assembly documentation

Selection of identifying characteristics of a switchgear and controlgear assembly according to DIN EN 61439-1

- Rated values of voltages – such as the rated voltage of a switchgear and controlgear assembly, the rated operating voltage of electrical circuits of a switchgear and controlgear assembly, the rated insulation voltage of a ...
- Rated values for currents (I_{nA} , I_{nc} , I_{pk} , I_{cw} , I_{cc})
- Rated Diversity Factor (RDF) (also for groups of electrical circuits)
- Rated frequency f_N
- Pollution degree, degree of protection (IP code)
- System after ground connection (line system configuration)
- Classification according to EMC (environmental condition A or B)
- ***Type of short-circuit protective device(s)***
- Protection against electric shock
- Overall dimension, weight, etc.

(1) A brief excursion covering the type of short-circuit protective device(s) according to DIN EN 61439-1

For switchgear and controlgear assemblies *with* a short-circuit protective device in the infeed, *the user should specify the value of the prospective short-circuit current* which can arise at the input connections of the switchgear and controlgear assembly.

Result:

The manufacturer must provide a marking or documentation which specifies the short-circuit withstand strength of the switchgear and controlgear assembly for which the short-circuit protective device on the infeed provides protection.



(2) A brief excursion covering the type of short-circuit protective device(s) according to DIN EN 61439-1

For switchgear and controlgear assemblies without an installed short-circuit protective device on the infeed, ***the manufacturer of the switchgear and controlgear assembly*** must specify the short-circuit withstand strength in one or more of the following ways:

- a) The ***rated short-time withstand current (I_{cw})*** together with the ***associated duration*** and the ***rated peak withstand current (I_{pk})***
- b) The ***rated conditional short-circuit current (I_{cc})***



(2) A brief foray covering the type of short-circuit protective device(s) according to DIN EN 61439-1

Technical specifications

Standards		DIN VDE 0660, IEC 60947			
Switches		Type	3LD2 0	3LD2 1	3LD2 2
Rated insulation voltage U_i		V	690		
Rated operational voltage U_e		V AC	690		
Rated frequency		Hz	50 ... 60		
lcw →	Rated impulse withstand voltage U_{imp}	V	690	690	690
	Rated short-time withstand current (1 s current, rms value)	A	340	640	640
	Short-circuit protection, max. back-up fuse (gL)	A	20	25	40
icc →	Rated conditional short-circuit current with upstream fuses at AC 50/60 Hz, 690 V	kArm s	50	50	50
	Maximum permissible let-through I^2t value	kA ² s	2.5	4	9
	Permissible let-through current of the fuse	kA	3	3.5	4.5

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Any questions?

Note / exclusion of liability

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