Norsk
Elektroteknisk
Komite

NEK 801:2024

Electrical installations and equipment for defence and emergency response – Mobile units

Norwegian electrotechnical standard

NEK 801:2024

Engelsk utgave

Norwegian electrotechnical standard

Electrical installations and equipment for defence and emergency response
Mobile units

Norsk elektroteknisk standard

Elektriske installasjoner og utstyr for forsvar og beredskap
Mobile enheter

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National Foreword

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Foreword

Introduction

Mobile units containing electrical installations, -machines and -equipment is used to a great extent by emergency responders. Power supply and electronic communication is essential in almost all of their operations.

Use in emergency situations necessitates special requirements and preconditions, as a result of operational and environmental conditions. The units must be constructed to withstand demanding climatic conditions, rough handling and use, and requires a high level of dependability, as lives could be dependent on the operational availability of the units.

Purpose

The purpose of this standard is to establish a clear and predictable expectation for safety and functionality in procurements. The requirements shall contribute to the achievement of desired quality while also maintaining a rational use of resources. References to civilian standards enables utilisation of commercial products and solutions. The standards shall also contribute to common solutions for emergency responders, for improved cooperation and compatibility between units from the different organizations. Common solutions and compatibility will be beneficial for the Norwegian Total Defence.

Preparation and validity

NEK 801:2024 has been prepared by NEK/ NK 500 and is valid from 2024-12-01. This is the first edition of the standard.

NEK 801 applies when specified.

This edition does not include every electrotechnical domain relevant for mobile units for use during operations by first responders. NK 500 has the ambition to include additional domains in the next edition, such as EC, EMC, field hospitals and battery installations.

Structure and content

The standard is mainly comprised of four elements:

— Operational environment and preconditions

— Electrotechnical requirements, through references to relevant standards where possible, including changes if needed

— Requirements for identification, documentation, dependability, verification etc.

— Informative annexes with guidance related to procurement and use

The standard is structured in clauses covering key domains and applications.

About standards

Standards are developed to provide safety, functionality, compatibility and enhance international trade. Most standards are developed at an international level in IEC and ISO. Standards are prepared by voluntary experts and distributed for review by national committees. The process is strictly monitored to maintain the principles of transparency and consensus. The standards shall not exclude equal solutions or give certain companies a competitive advantage. International standards are often adopted at a European level in CENELEC or CEN and at a national level in NEK or Standard Norge, with or without

changes. Such as NEK 400, which is based on the European standard series HD 60364 which again is based on the international standard series IEC 60364. The standards that make up NEK 400 are translated and there are made changes to meet Norwegian conditions.

The use of standards is voluntary, but can be made mandatory through requirements and legislation. Examples of this is national acts and regulations referring to a standard, standards harmonized under EU directives, or through requirements in a contract. It is increasingly common that authorities state general requirements for products and services and refer to standards for technical solutions. Such as the Regulations for Electrical Low Voltage Installations (FEL), which refers to NEK 400 as an approved method to comply with safety requirements in the regulation.

Norwegian membership in EEA entails an obligation to implement European directives. To simplify conformance with the directives, the European Commission publishes a list of harmonised standards related to each directive. Such as EN 60204-1, which is a harmonised standard related to the Machinery directive. Another example is the Low Voltage Directive, which relates to a large number of harmonised product standards. For the defence sector, NATO Standards (STANAGs) and American military standards (MIL-STDs) will also be relevant.

Conformance with NEK 801

Declaration of conformance with NEK 801 means that the supplier confirms that the installation is designed, installed, verified and documented in conformance with the requirements in NEK 801 and the purchasers information on the operational environment, and that equipment is selected in conformance with the requirements in NEK 801.

Certain parts of NEK 801 are informative. This means that conformance with NEK 801 may be declared without adhering to the recommendations given in the informative text.

How to read NEK 801:2024

The requirements in the standard describe an acceptable level of safety and functionality. This implies that units with a higher level of safety and functionality will also be in conformity with the standard.

The requirements in NEK 801 can only be deviated from if their fulfilment would ensue a direct negative effect on a critical function or safety within another technical domain. This has to be clarified with the purchaser in every single case. Requirements cannot be deviated from if a adequate alternative solution exists .

Important concepts for the correct interpretation of NEK 801:

Normative text:	Text containing requirements that are to be complied with when declaring conformance with the standard.
Notes:	Text that provides additional information to the relevant requirement and may also contain recommendations. Such recommendations are not considered as requirements and do not have to be complied with.
Recommendation:	Text that recommends a solution or inform of special considerations. Recommendations are not requirements that have to be complied with, but is meant to provide guidance.
Annex (normative)	Text providing additional requirements related to a subject. There are normally already requirements related to the subject in the normative text. A normative annex has the same status as the normative text of the standard.
Annex (informative)	Text providing further description of problem areas or possibly background information. Informative annexes do not contain requirements that have to be complied with.
Shall-requirements:	Formulations with «shall» expresses a requirement that cannot be deviated from. Conditions can apply, but if these conditions are present, the requirement shall be complied with.
Should-requirements:	Formulations with «should» expresses a preferred solution, method, equipment or installation. It is implicit that other equally good alternatives may be applied given that they are technically founded and the reasoning documented.

ELECTRICAL INSTALLATIONS AND EQUIPMENT FOR DEFENCE AND EMERGENCY RESPONSE –

Mobile units

1 Scope

This standard specifies requirements for electrical installations, -machines and -equipment in mobile units for use during operations by emergency responders. The units are used to perform a variety of functions during operations.

EXAMPLE Power supply, communication, mess, storage and protection.

The standard applies to units with TN-S and TN-C-S installations up to 1000 V AC.

The standard does not apply to:

— Permanent infrastructure

— Vehicles, marine vessels, rolling stock or aircraft

— Medical locations

2 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.

NEK 400, *Electrical low voltage installations*

NEK 420A, *Electrical installations in potential explosive atmospheres*

NEK TS 420C, *Eksplosive stoff og varer - Områdeklassifisering og elektriske installasjoner*

NEK 439 (alle), *Lavspenningstavler og kanalskinnesystemer*

NEK 502, *Plugs and socket-outlets for household and similar purposes*

NEK EN 60204-1, *Safety of machinery – Electrical equipment of machines Part 1: General requirements*

NEK EN 50525-2-21, *Electric cables – Low voltage energy cables of rated voltages up to and including 450/750 V (Uo/U) – Part 2-21: Cables for general applications - Flexible cables with crosslinked elastomeric insulation*

NEK EN 61386-24, *Conduit systems for cable management Part 24: Particular requirements Conduit systems buried underground*

NEK EN 60309-2, *Plugs, fixed or portable socket-outlets and appliance inlets for industrial purposes – Part 2: Dimensional compatibility requirements for pin and contact-tube accessories*