

This 3rd English edition is based on the 29th German edition of *Tabellenbuch Elektrotechnik*, a leading compendium in German-speaking countries which is also available worldwide in various languages. This edition has been enhanced and supplemented by the topics of digitisation, Industry 4.0, smart grids, smart home, and requirements related to climate change. Standards were also modified. Despite the harmonisation of the most important European standards, local regulations may differ slightly from German standards under certain circumstances, which means that where safety matters are concerned, the user has to check whether any other local regulations exist.

<b>Section F</b>	Formula symbols for electrical rotating machines, units and quantities, mathematical symbols, unit prefixes, force, moment of force, work, power, heat, charge, voltage, current, resistance, potentiometers, alternating quantities, three-phase current, unbalanced loads in the three-phase current, resistors, capacitors, diodes, transistors, thyristors, and magnetic field-dependent components.
<b>Fundamentals, Physics, Components</b>	
<b>Section TM</b>	Technical drawing, circuits and circuit symbols, circuit diagrams, using reference identification, documentation, and operating instructions. Measuring instruments and systems, measuring categories, measurement in electrical installations, power meters, hydraulic and pneumatic components, symbols used in process engineering, markings used in electropneumatic controllers, electropneumatic basic circuits, AC/DC quantity gathering, oscilloscopes, sensors, light barriers.
<b>Technical Documentation, Measuring</b>	
<b>Section EI</b>	Qualifications required for working in electrical installations, working in electrical installations, installation circuits, intercom systems, minimum equipment requirements for communication installations in residential buildings, types of dimmers, dimming LEDs, building management and automation, building automation via existing power lines, DALI, smart home systems, components for radio control, setting up control cabinets, house connection and sectioning the PEN conductor, calculating lines, cable lengths, length-related inductance and voltage drop, harmonics, separating communication cabling, overcurrent protection equipment, electrical installations, lighting engineering, LED lighting, LED tube lights/luminous bands.
<b>Electrical Installations</b>	
<b>Section SE</b>	Workplace health and safety, current hazard due to DC, basic protection, fault protection, complementary protection, Protection Manager, residual currents, coordinating the equipment, types of power plants, high voltage direct current transmission, electricity trading, explosion-proof equipment, IC code, IK code, insulator classes, transformers, overhead power cables, underground cables, photovoltaic power plants, fuel cells, primary elements, accumulators, SCS systems, charging technologies for accumulators, charging stations for electric vehicles, lightning protection, compensation, measuring harmonics, THD values, controlling grid voltage and frequency, safety engineering, fire safety and wiring systems, heating consumption, energy harvesting, the German Energy Saving Ordinance, electrical energy efficiency, electricity tariffs.
<b>Safety, Energy Supply</b>	
<b>Section IC</b>	Number systems, codes, sweep circuits, Windows keys, Excel, digitisation, Industry 4.0, Internet of Things, DA converters, AD converters, modulation and demodulation, information technology networks, Ethernet, wireless LAN, AS-I bus systems, M-Bus and smart metering, 3D printers, network communication, PROFINET, identification systems, Internet, antenna systems, satellite systems, telecontrol, remote maintenance, SIL functional safety, sensor wiring, malfunctions in radio transmissions, satellite receiver systems.
<b>Information and Communication Technology</b>	
<b>Section AC</b>	Operational amplifiers, converters, SMPS, control relays, programmable logic controllers PLC, library-capable PLC blocks, TIA Portal, GRAFCET, electrical equipment for machinery, contactors, engine protection, control technology, auxiliary circuits in control systems, AC motors, DC motors, efficiency of drive systems, servomotors, micro-motors, linear drives, selecting and setting up frequency converters, safety functions, electronic limit switches, soft starters.
<b>Automation, Drive and Control Systems</b>	
<b>Section MC</b>	Periodic table, specific material values, steel standardisation, magnetic materials, insulators, cables and wires, underground cables, connectors, Cat7 connectors, solderless connection technology, threads, screws, bolts and nuts.
<b>Materials, Connection Technology</b>	
<b>Section CE</b>	Organisational structures of companies, teamwork, job planning, cost accounting and KPIs, implementation of projects, conflict management, communication with customers, business etiquette, statistical analyses, quality management, environmental terms, hazardous materials, standards, abbreviations, technical glossary, companies and departments.
<b>The Company and its Environment</b>	

It should be noted in general that standards allow different ways of representation, e.g. DIN EN 61082 (Documents in Electrical Engineering, Rules) allows the representation of electricity branching with or without a point. As usual in professional practice, we have taken advantage of this freedom also in this book.

The publisher and authors would like to thank users for their numerous comments, which have helped to improve this book. We would be grateful for future suggestions and constructive comments. You can send them per email to [lektorat@europa-lehrmittel.de](mailto:lektorat@europa-lehrmittel.de).