

# DIN EN 14459:2023-07 (E)

## Safety and control devices for burners and appliances burning gaseous or liquid fuels - Control functions in electronic systems - Methods for classification and assessment

---

<b>Contents</b>		<b>Page</b>
	European foreword .....	4
	Introduction .....	5
1	Scope .....	6
2	Normative references .....	6
3	Terms and definitions .....	6
4	Classification .....	6
4.1	Classes of control .....	6
4.2	Groups of control .....	6
4.3	Classes of control functions .....	6
4.4	Types of DC supplied controls .....	6
5	Test conditions and uncertainty of measurements .....	6
6	Design and construction .....	7
6.1	General .....	7
6.2	Mechanical parts of the control .....	7
6.3	Materials .....	7
6.4	Gas connections .....	7
6.5	Electrical parts of the control .....	7
6.6	Protection against internal faults for the purpose of functional safety .....	7
6.101	Requirements for new control solutions .....	7
6.101.1	General .....	7
6.101.2	Assessment of the appliance .....	7
6.101.3	Translation into control requirements .....	8
7	Performance .....	8
7.1	General .....	8
7.2	Leak-tightness .....	8
7.3	Torsion and bending .....	8
7.4	Rated flow rate .....	9
7.5	Durability .....	9
7.6	Performance tests for electronic controls .....	9
7.7	Long-term performance for electronic controls .....	9
7.8	Data exchange .....	9
7.101	Combined apparatus .....	9
8	Electrical requirements .....	9
8.1	General .....	9
8.2	Protection by enclosure .....	9
9	Electromagnetic compatibility (EMC) .....	9
9.1	Protection against environmental influences .....	9
9.2	Supply voltage variations below 85 % of rated voltage .....	9
9.3	Voltage dips and interruptions .....	9

9.4	Supply frequency variations .....	10
9.5	Surge immunity tests .....	10
9.6	Electrical fast transient/burst .....	10
9.7	Immunity to conducted disturbances induced by radio frequency fields .....	10
9.8	Immunity to radiated disturbances induced by radio frequency fields .....	10
9.9	Electrostatic discharge test .....	10
9.10	Power frequency magnetic field immunity tests .....	10
9.11	Harmonics and interharmonics including mains signalling at a. c. power port, low frequency immunity tests .....	10
10	Marking, instructions .....	10
10.1	Marking .....	10
10.2	Instructions .....	10
10.3	Warning notice .....	10
Annex A (informative) Abbreviations and symbols .....		11
Annex B (informative) Leak-tightness tests for gas controls - volumetric method .....		12
Annex C (informative) Leak-tightness tests for gas controls - pressure loss method .....		13
Annex D (normative) Calculation of pressure loss into leakage rate .....		14
Annex E (normative) Electrical/electronic component fault modes .....		15
Annex F (normative) Additional requirements for safety accessories and pressure accessories as defined in EU Directive 2014/68/EU .....		16
Annex G (normative) Materials for pressurized parts .....		17
Annex H (normative) Additional materials for pressurized parts .....		18
Annex I (normative) Requirements for controls used in DC supplied burners and appliances burning gaseous or liquid fuels .....		19
Annex J (normative) Method for the determination of a Safety Integrity Level (SIL) .....		20
Annex K (normative) Method for the determination of a Performance Level (PL) .....		21
Annex L (informative) Relationship between Safety Integrity Level (SIL) and Performance Level (PL) .....		22
Annex M (normative) Reset functions .....		23
Annex N (informative) Guidance document on Environmental Aspects .....		24
Annex O (normative) Seals of elastomer, cork and synthetic fibre mixtures .....		25
Annex AA (informative) Example of a risk assessment method .....		26
Annex BB (informative) Example of a risk assessment according to method described in Annex AA .....		28
BB.1 General .....		28
BB.2 Risks .....		28
BB.3 Risk assessment .....		28
Annex CC (informative) Realization of a protective measure .....		31
Annex DD (informative) Hazards in gas and oil appliances handled by control functions .....		33

**Annex EE (informative) Classification of control functions based on the determination of basic risks ..... 37**

**Bibliography ..... 41**