

Contents

page

Foreword.....	4
Introduction	5
1 Scope	6
2 Normative references	6
3 Terms and definitions	6
3.1 electronic gas/air ratio control (electronic GARC)	6
3.2 electronic control box (ECB)	7
3.3 actuator	7
3.4 sensor	7
3.5 combustion process	7
3.6 defined safe state	7
3.7 fault tolerating time	8
3.8 safety shut-down	8
3.9 lock-out	8
3.9.1 non-volatile lock-out	8
3.9.2 volatile lock-out	8
3.10 abnormal operation	8
3.11 form closure construction	8
4 Classification	9
5 Units of measurement and test conditions	9
6 Construction requirements	9
6.1 General	9
6.2 Mechanical requirements	9
6.2.1 General	9
6.2.2 Special requirements for electromechanical actuators with position feed-back sensors	10
6.3 Electrical equipment	10
6.3.1 General	10
6.3.2 Class of protection	10
6.3.3 Electronics and software	10
7 Functional requirements	10
7.1 General	10
7.2 Burner control interface	11
7.3 Safety shut-down initiated by the electronic GARC	11
7.4 Start-up sequence	11
7.5 Preset/predefined range	11
7.6 Restart from defined safe state	11
7.7 Accuracy requirements	11
7.7.1 General	11
7.7.2 Sensor(s) and actuators	12
7.7.3 Repeatability	12
7.8 Protection against internal faults	12
7.8.1 Failure modes of components	12
7.8.2 Safety class	12
7.9 Information to be supplied by the manufacturer	12
7.10 Documentation	13
7.11 Assessment	13
8 Protection against environmental influences	13
8.1 General	13

8.2 Test conditions 13

8.3 Performance tests 14

8.3.1 At ambient temperature 14

8.3.2 At low temperature 14

8.3.3 At high temperature 14

8.4 Void..... 14

8.5 Endurance 14

8.5.1 General 14

8.5.2 Vibration test..... 15

8.5.3 Humidity..... 15

8.6 EMC-requirements 15

8.6.1 General 15

8.6.2 Supply voltage variations..... 15

8.6.3 Supply voltage interruptions or decreases 15

8.6.4 Supply frequency variations 16

8.6.5 Surge immunity..... 16

8.6.6 Electrical fast transient burst 16

8.6.7 Electromagnetic conducted and radiated disturbances induced by radio-frequency fields 16

8.6.8 Electrostatic discharge immunity 16

9 Marking and installation 16

9.1 Marking 16

9.2 Installation and operating instructions 16

9.3 Warning note 17

Annex A (informative) Approval path for the electronic GARC 18

Annex B (normative) Manufacturer's declaration for sensors, actuators and repeatability 19

Annex C (normative) Special requirements for single position feed-back potentiometers in electromechanical actuators 23

Annex ZA (informative) Clauses of this European Standard addressing essential requirements or other provisions of EU Directives..... 24