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امورتدوین استانداردها

IGS

مشخصات فنی خرید

چراغهاي ال اي دي

LED Lighting Fixtures

FOREWORD

This standard is intended to be mainly used by NIGC and contractors and has been prepared on interpretation recognized standards, technical documents, knowledge, backgrounds and experiences in gas industries at national and international levels. Iranian gas standards (IGS) are prepared, reviewed and amended by technical standard committees within NIGC Standardization division and submitted to the NIGC's "STANDARDS COUNCIL" for approval.

IGS Standards are subject to revision, amendment or withdrawal, if required, thus the latest edition of IGS shall be checked/inquired by NIGC users.

This standard must not be modified or altered by the end users within NIGC and her contractors. Any deviation from normative references and / or well known manufacturers specifications must be reported to Standardization division.

Any comments from concerned parties on NIGC distributed IGS are welcome to technical standards committees and will receive serious attention and consideration should a revision to standards is recommended .

GENERAL DEFINITIONS:

Throughout this standard the following definitions, where applicable, should be followed:

- 1- "STANDARDIZATION DIV." has been organized to deal with all aspects of industrial standards in NIGC. Therefore, all queries for clarification or amendments are requested to be directed to mentioned div.
- 2- "COMPANY": refers to national Iranian gas company.
- 3- "SUPPLIER": refers to a firm who will supply the service, equipment or material to IGS specification whether as the prime producer or manufacturer or a trading firm.
- 4- "SHALL ": is used where a provision is mandatory.
- 5- "SHOULD": is used where a provision is advised only.
- 6- "MAY": is used where a provision is completely discretionary.

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Table of Content

<u>No</u>	<u>Subject</u>	<u>Page</u>
1	Scope	2
2	References	2
3	Terms and definitions	3
4	General requirements	5
5	General characteristics For LED fixture	6
6	Connectors and terminals	7
7	Provisions for protective earthing	7
8	Protection against accidental contact with live parts	7
9	Moisture resistance and insulation	8
10	Electric strength	8
11	Fault conditions	8
12	Tests	8
13	Conformity testing during manufacture	10
14	Creepage distances and clearances	10
15	Resistance to heat, fire and tracking	10
16	Resistance to corrosion	11
17	Packing and packaging	11
18	Marking	11
19	Documentation	12
20	Data Sheet	13
21	Figures	16

1- Scope

This Standard specification covers the minimum requirements for LED lighting fixtures excluding their control gears for use in general lighting on DC supplies up to 250 V or AC supplies up to 1000 V at 50 Hz.

Note : IGS-M-EL-024-2(0) is considered for LED control gears .

2- References

Throughout this standard specification the following standards are referred to. The editions of these standards that are in effect at the time of issue of this standard specification (2012) shall, to the extent specified herein, form part of this standard specification. The applicability of changes in standards that occur after the date of this standard specification shall be mutually agreed upon by the purchaser and the supplier.

2.1 Normative References

IEC 62031:2008 , *LED Modules for general lighting –Safety specifications.*

IEC/PAS 62717:2011(pre-standard), *LED modules for general lighting – Performance requirements.*

IEC 62560:2011, *Self-ballasted LED-lamps for general lighting services by voltage > 50 V – Safety specifications*

IEC/PAS 62612:2009, *Self-ballasted LED-lamps for general lighting services – Performance requirements*

IEC/PAS 62722-2-1:2011, *Luminaire performance – Part 2-1: Particular requirements for LED luminaires.*

IEC/TS 62504:2011, *General lighting – LEDs and LED modules – Terms and definitions*

2.2 Informative References

IEC 61347-2-13:2006, *Lamp control gear – Particular requirements for d.c. or a.c. supplied electronic control gear for LED modules.*

IEC 62384:2011, *DC or AC supplied electronic control gear for LED modules – Performance Requirements.*

IEC 60598-1:1989, *Luminaires, Part 1: General requirements and tests*¹⁾ Amendment 1

IEC 60838-2-2:2006, *Miscellaneous lamp holders – Part 2-2: Particular requirements, Connectors for LED modules*

IEC 61347-1-2007: *Lamp control gear – Part 1: General and safety requirements*

IEC 62471-2:2006, *Photo biological safety of lamps and lamp systems-Part 2 : Guidance on manufacturing requirements relating to non-laser optical radiation safety.*

IEC/PAS 62722-1:2011, *Luminaire performance – Part 1: General requirements*

CIE 13.3:1995 (CD008-1995 included), *Method of measuring and specifying color rendering properties of light sources.*

CIE 121:1996, *The photometry and goniophotometry of luminaires*

CIE 177:2007, *Color rendering of white LED light sources*

IEC/TR 61341, *Method of measurement of centre beam intensity and beam angle(s) of reflector lamps.*

IEC 61558-1:1998, *Safety of Power Transformers, Power Supply Units and Similar - Part 1: General Requirements and Tests*

IEC 60050-845:1998, *International Electrotechnical Vocabulary – Part 845: Lighting*

IEC/TR 61341:1994, *Method of Measurement of Centre Beam Intensity and Beam Angle(s) of Reflector Lamps First Edition*

IEC 61547:1995, *Equipment for General Lighting Purposes - EMC Immunity Requirements*

IEC 60061-1:2002, *Lamp caps and holders together with gauges for the control of interchangeability and safety*

IEC 60968:1999, *Self-ballasted lamps for general lighting services – Safety requirements.*

3- Terms and definitions

3.1 Light-emitting diode (LED)

An LED is a solid state device embodying a p-n junction emitting optical radiation when excited by an electric current.

Note1: LEDs are assembly of one or more LED Dies(p-n junctions) in a LED package, possibly with optical element and thermal, mechanical, and electrical interfaces. The device does not include the control unit of the control gear, does not include an IEC Standardized lamp cap, and is not connected directly to the mains.

Note2: LEDs in the today's market are mostly produced in three categories as 1) low power single die LED with power of below 0,5 watt(usually named "smd" LEDs), 2) High power single die LED with powers of 0.5, 1, 3 or 5 watt(or more in future) and 3) High power multi-die LEDs with powers of 10, 30, 50, 100 watts and more.

For more illustration see Figure F.1.

3.2 LED module

Unit supplied as a light source. In addition to one or more LEDs, it may contain further components, e.g. optical, mechanical, electrical and electronic, but excluding the control gear.

Note: The following types of LED modules are distinguished:

- *Type 1: Self-ballasted LED modules for use on dc supplies up to 250 V or on ac supplies up to 1 000 V at 50 Hz.*
- *Type 2: LED modules operating with external control gear connected to the mains voltage, and having further control means inside ("semi-ballasted") for operation under constant voltage, constant, current or constant power;*
- *Type 3: LED modules where the complete control gear is separate from the module for operation under constant voltage, constant current or constant power.*

For more illustration see Figure F.2.

3.3 LED lamp

LED modules with integrated control gear and equipped with a lamp cap (thereby replacing existing lamps with identical lamp caps). In addition to one or more LEDs, it may contain further components, e.g. optical, mechanical, electrical and electronic, including the control gear.

For more illustration see Figure F.3.

3.4 LED luminaire

Luminaire is incorporated with LED light sources (LEDs or LED modules).

For more illustration see Figure F.4.

3.5 LED lighting fixture

In this standard we use the term “LED Lighting Fixture” or simply “LED Fixture” as a general term for any kind of LED light source such as LED lamp, LED module or LED luminaire (clauses 3.2 to 3.4 above).

3.6 Integral LED module

LED module, generally designed to form a non-replaceable part of a luminaire.

3.7 Built-in LED module

LED module, generally designed to form a replaceable part built into a luminaire.

3.8 Independent LED module

LED module, so designed that it can be mounted or placed separately from a luminaire. The independent LED module provides all the necessary protection with regard to safety according to its classification and marking.

3.9 Electronic control gear

Unit inserted between the supply and one or more LED modules which serves to supply the LED module(s) with its (their) rated voltage or rated current. The unit may consist of one or more separate components and may include means for dimming, correcting the power factor and suppressing radio interference. A control gear contains two main units, “power supply unit” which controls current, voltage or power within design limits and “control unit” which is responsible for controlling the electrical energy to the LEDs as well as color mixing, depreciating luminous flux and further performance features of LEDs.

NOTE: In semi-ballasted LED modules, the control unit of the control gear is on board the module and separate from the power supply of the control gear.

3.10 Rated value

Nominal values for electrical parameters of a LED module for specific operating conditions which are specified in this standard, or assigned by the manufacturer or responsible vendor.