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EIA SPECIFICATION

Sectional Specification for Pushbutton Switches of Certified Quality

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(Revision of EIA-520A000)

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TABLE OF CONTENTS

	<u>Page</u>
1. SECTION ONE - SCOPE AND OBJECT	1
1.1 Scope	1
1.2 Object	1
2. SECTION TWO - GENERAL	1
2.1 Related Documents	1
2.2 Units and Symbols	2
2.3 Terminology	2
2.4 Preferred Values	2
2.5 Marking	3
2.6 Detail Specifications	3
3. SECTION THREE - QUALITY ASSESSMENT PROCEDURES	4
3.1 Qualification Approvals Procedures	4
3.2 Quality Conformance Inspection	5
3.3 Delayed Deliveries	6
4. SECTION FOUR - TEST AND MEASUREMENT PROCEDURES	12
4.1 Test 2-6 Lamp Circuit Resistance	12
4.2 Test 18-4 Sunlight Readability	13
4.3 Test 18-5 Stray Lights	14
4.4 Test 19-1 EMI Shielding	15
TABLE I - QUALIFICATION APPROVAL INSPECTION TESTS	7
TABLE II - LOT-BY-LOT INSPECTION TESTS	10
TABLE III - PERIODIC INSPECTION TESTS	11
FIGURE 1 - SUNLIGHT READABILITY TEST	14
FIGURE 2 -EMI SHIELDING TEST	16
APPENDIX A - TERMINOLOGY	17
APPENDIX B - DEFECTIVES	21

**SECTIONAL SPECIFICATION:
PUSHBUTTON SWITCHES OF CERTIFIED QUALITY**

(From Standards Proposal No. 2399, formulated under the cognizance of the EIA P-13.3 Subcommittee on Sensitive, Pushbutton & Keyboard Switches)

1. SECTION ONE - SCOPE AND OBJECT

1.1 Scope

This Sectional Specification applies to the pushbutton switch family of special-use electromechanical switches of certified quality. Pushbutton switches covered by this standard have a rated voltage not exceeding 500 volts and a rated current not exceeding 25 amperes.

1.2 Object

The objectives of this specification are:

- a) To prescribe preferred ratings and characteristics.
- b) To select the appropriate quality certification procedures and test methods from EIA 5200000.
- c) To prescribe the general performance requirements for pushbutton switches.

Test severities and performance requirements prescribed in the Detail Specification shall be equal to or more severe than the mandatory severities and performance requirements specified herein.

2. SECTION TWO - GENERAL

2.1 Related Documents

The following documents of the issue in effect form a part of this standard to the extent specified herein.

EIA 5200000 Generic Specification: Special-use
Electromechanical switches of Certified
Quality.

2.2 Units and Symbols

The requirements of EIA 5200000 shall apply.

2.3 Terminology

In addition to the terminology specified in EIA 5200000, the definitions in Appendix A shall apply to all pushbutton switches.

2.4 PREFERRED VALUES

2.4.1 Rated voltages

The following voltage ratings are preferred:

<u>volts ac (rms)</u>	<u>volts dc</u>
6	.030 (low level)
30	5 (logic level)
125	6
277	28
	125
	250

2.4.2 Rated currents

The following current ratings are preferred:

- not exceeding 2.0 amperes: current ratings shall be in 0.25 ampere increments.
- greater than 2.0 amperes to 10 amperes - current ratings should be in 0.50 ampere increments.
- greater than 10 amperes - current ratings should be 1.0 ampere increments.

2.4.3 Low temperature rating

The following low temperature ratings (lower temperature category) are preferred:

-10°C	-40°C
-25°C	-55°C



2.4.4 High temperature rating

The following high temperature ratings (upper temperature category) are preferred:

55°C	100°C
70°C	125°C
85°C	

2.5 Marking

The marking requirements of EIA 5200000 shall apply.

2.6 Detail Specification

Detail Specifications shall be derived from the relevant Blank Detail Specification.

Detail Specifications shall not specify test severities or performance requirements that are less than those specified herein. When more severe test severities or performance requirements are included, they shall be clearly described in the Detail Specification and shall be indicated in the test schedules by a special notation such as an asterisk. If the technical requirements of this standard that are related to inspection are not entirely suitable (either for technical reasons or for special applications) for the pushbutton switch described in the Detail Specification, the Detail Specification shall clearly describe the various amendments that are to be made to these requirements.

The following information shall be given in each Detail Specification and the values prescribed shall preferably be selected from those given in the applicable paragraph of this standard.

2.6.1 Outline drawing and dimensions

There shall be an illustration of the pushbutton switch as an aid to easy recognition and for comparison with other types of pushbutton switches. The illustration shall preferably be an orthographic projection with at least two views using third angle projection.

The dimensional limits necessary for mounting and interchangeability shall be prescribed. All dimensions shall be stated in millimeters with the equivalent inch dimensions given in parentheses. It shall be noted whether the original dimensions are in inches or millimeters.

2.6.2 Mounting

The method of mounting for normal use shall be specified.

2.6.3 Electrical ratings

The rated voltage(s) and the rated current(s) shall be specified.

2.6.4 Functional operation

The switching circuitry, the actuator function (detent, self-return, etc.) and any other electrical non-switching operation (lamps, solenoids, etc.) shall be completely described.

2.6.5 Operating characteristics

The total travel and the operating force shall be stated.

2.6.6 Special characteristics

Any special characteristics (sealing, altitude ratings, etc.) shall be listed when they are considered necessary to adequately specify the pushbutton switch for design and application purposes.

2.6.7 Quality assessment level

The quality assessment level (see 3.1) shall be specified.

3. SECTION THREE - QUALITY ASSESSMENT PROCEDURES

3.1 Qualification approval procedures

Qualification approval procedures shall be as prescribed by EIA 5200000 and the following requirements:

- a) The tests required for qualification approval are prescribed in Table I and shall be used for approval of a single style of switch. For approval of multiple styles of the same switch type, the total quantity of test specimens for each test and the proportion of each representative style shall be specified by the Detail Specification. Spare test specimens are

permitted for Group 0. The principles of structural similarity may be applied.

After completion of the Group 0 tests, the sample shall be divided for the other groups. The tests within a group shall be performed in the order shown except that the Group 0 tests may be performed in any sequence.

Specimens found defective during the tests of Group 0 shall not be used for other groups.

"One defective" is counted when a switch has not satisfied all or part of the requirements of a group.

Qualification approval shall be granted upon completion on all required testing with no defective units.

- b) Test specimens shall be as specified in the detail specification and shall be representative of the range of product described in it.
- c) In the case of test failure due to defective units, the qualification resubmittal shall include documentation that identifies the failure mode and corrective action.

3.2 Quality Conformance Inspection

Quality conformance inspection shall be as prescribed by EIA-5200000 and the following requirements:

- a) The lot-by-lot inspection tests are prescribed in Table II. The sequence of tests is optional unless otherwise specified. Inspection Level II shall apply. "C = 0" sampling plans per EIA-584 or EIA-585, as applicable, shall apply.

The prescribed AQLs apply to each attribute inspected during the test. At the manufacturer's option, a more stringent AQL may be used.

An inspection lot may consist of structurally similar switches provided the conditions of EIA-5200000 are met.