



IEEE Standard for 4.76 kV to 38 kV Rated Ground and Test Devices Used in Enclosures

IEEE Power Engineering Society

Sponsored by the
Switchgear Committee

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**Switchgear Committee
of the
IEEE Power Engineering Society**

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Abstract: Drawout-type ground and test devices for use in medium-voltage metal-clad switchgear rated 4.76 kV through 38 kV are covered. The description, design, and testing of these accessory devices that are inserted in place of drawout circuit breakers for the purpose of grounding and testing are also covered.

Keywords: electrical operation, ground and test (G&T) devices, locking/interlocking, manual operation, one or two terminal sets, selector switch, test port

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Introduction

This introduction is not part of IEEE Std C37.20.6-2007, IEEE Standard for 4.76 kV to 38 kV Rated Ground and Test Devices Used in Enclosures.

Although ground and test (G&T) devices have been used as accessory devices in metal-clad switchgear for decades, they were not covered by standards until the original (1997) edition of this standard. This is because they are specialized accessory devices, designed and tested in accordance with applicable sections of circuit breaker standards, and based on user-unique operational requirements.

This standard complements IEEE Std C37.20.2™-1999, IEEE Standard for Metal-Clad Switchgear,^a and addresses the more common G&T device types. This standard also clarifies that G&T devices are not required to have the interrupting and continuous current ratings of the circuit breakers they may temporarily replace for the purpose of grounding and testing medium-voltage circuits. This revised edition recognizes that some devices may be offered that have interrupting capability, and specifies applicable tests to verify such ratings.

G&T devices are supplied in various forms and the following list generally summarizes the more common forms:

- a) *Simple manual devices.* These devices are equipped with either one or two terminal sets for grounding through cables, manually connected to the device ground connection system. Hot stick voltage testing is possible.
- b) *Complex manual devices.* These devices are equipped with one or two terminal sets, and a manually operated switch. In the case of a device with one terminal set, the switch allows connection of the terminal set to the device ground connection system or disconnection of the terminal set from the device ground connection system. In the case of a device with two terminal sets, the switch allows selection of which terminal set to connect to the device ground connection system. In either case, the switch is manually operated and is not required to have any continuous or fault-making current ratings.
- c) *Simple electrical devices.* These devices are equipped with one terminal set connected, through a power-operated ground-making switch, to the device ground connection system. Voltage test ports may be provided. A second terminal set may be included for connection to test ports.
- d) *Complex electrical devices.* These devices are equipped with two terminal sets and a manually operated switch for selecting which terminal set is to be connected, through the power-operated ground-making switch, to the device ground connection system. Voltage test ports may be provided.

All G&T devices are equipped with necessary isolation barriers and locking or interlocking mechanisms to provide some degree of protection during handling and operation.

This standard does not cover G&T devices that are specially equipped with current and voltage transformers, glow-tubes, and like components.

This revision uses the rating system introduced in IEEE Std C37.04™-1999 [B2],^b with voltage range factor (K) set equal to 1.0, effectively eliminating the voltage range factor from the ratings basis. It is recognized that some G&T devices may be required for use with equipment manufactured and rated to the older rating system. For such applications, the user should refer to the 1997 edition of this standard.

^a Information on references can be found in Clause 2.

^b The numbers in brackets correspond to those of the bibliography in Annex A.

G&T devices designed before the approval of this standard may not meet all of these established requirements. The user should consult with the manufacturer if any question exists regarding the proper application of these G&T devices on the user's system.

Suggestions gained from use of this standard will be welcomed for guidance in future revisions of this standard.

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Contents

1. Overview	1
1.1 Scope	1
1.2 Purpose	2
2. Normative references.....	2
3. Definitions	2
4. Service conditions	4
5. Ratings.....	4
5.1 General	4
5.2 Rated maximum voltage and dielectric withstand voltage	4
5.3 Rated power frequency	4
5.4 Rated short-time withstand current.....	4
5.5 Rated momentary withstand current.....	4
5.6 Rated control voltage.....	5
5.7 Closing and latching current capability	5
6. Functional components.....	5
6.1 Power-operated ground-making switch position indicator	5
6.2 Terminal selector switch and position indicator	5
6.3 Stored energy indicator.....	6
6.4 Interlocking.....	6
6.5 Nameplate(s).....	7
7. Test requirements	8
7.1 General	8
7.2 Design tests.....	8
7.3 Schedule of design tests.....	8
7.4 Production tests.....	14
8. Construction	15
8.1 General	15
8.2 Instructions	15
8.3 Cable specifications.....	15
8.4 Remote electrical control.....	16