**UL 943C**

**Outline of Investigation for Special Purpose Ground-Fault Circuit-Interrupters**

**Issue Number 3**

**July 2, 2026**

***Summary of Topics***

***This is the third issue of the Outline of Investigation for Special Purpose Ground-Fault Circuit-Interrupters, UL 943C, including expansion of grounded neutral table resistances, Class F GFCI, High Frequency HF rating, Class C pick up current, optional – loss of phase, normally open interrupting contacts auto monitor allowance fault condition – F, and revision to Figure 1.1 Application of GFCI flow chart***

*Portions of this document include excerpts from UL Standards. UL Standards are owned and copyrighted © by ULSE Inc. ULSE Inc. authorizes the use of these portions solely for use in this document.*

UL's Outlines of Investigation are copyrighted by UL LLC. Neither a printed nor electronic copy of an Outline of Investigation should be altered in any way. All of UL's Outlines of Investigation and all copyrights, ownerships, and rights regarding those Outlines of Investigation shall remain the sole and exclusive property of UL LLC.

**© 2026 UL LLC**

*UL COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM UL LLC*

No Text on This Page

UL COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM UL LLC

## CONTENTS

### INTRODUCTION

1 Scope ....5
2 Glossary ....6
3 Components ....6
4 Units of Measurement ....7
5 Undated References ....7

### CONSTRUCTION

6 General ....7
7 Grounding Circuit ....7
8 Spacings ....7
9 Grounding Monitor/Interrupter (GM/I) ....8
10 Insulation ....8
11 Supervisory Circuit ....9
12 Programmable Circuit Components ....9
13 High Frequency (HF) Rating ....10
14 Optional – Automatic Reclosure Under Loss of Phase ....10

### PERFORMANCE

15 General ....11
16 Environmental Test Sequence ....11
17 High Resistance Ground-Fault Test ....12
18 Grounded Neutral Test ....13
19 Resistance to False Tripping Test ....14
20 Grounding Monitor/Interrupter Test ....14
21 Overload and Motor Starting ....15
22 Low Resistance Ground Fault ....16
23 Endurance Test ....16
24 Surge Current Test ....17
25 Abnormal Overvoltage Test ....17
26 Extra Low Resistance Ground Fault Test ....18
27 Short Circuit Test ....18
28 Optional – Automatic Reclosure Under Loss of Phase ....18
29 Auto-Monitoring Function Tests ....19

### MARKINGS

30 General ....19
31 Class Marking ....19
32 Other Markings ....19
33 Instructions ....20

### APPENDIX A – Sample Calculation of Grounding Conductor Size

A1 Sample Calculation of Grounding Conductor Size ....21

UL COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM UL LLC

No Text on This Page

UL COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM UL LLC

## INTRODUCTION

### 1 Scope

1.1 These requirements cover ground-fault circuit-interrupters intended for use in one of the following applications:

a) Where the voltage to ground is greater than 150 volts and equipment grounding or double insulation is required by the NFPA 70®, *National Electrical Code®* (NEC®);

b) Where the voltage to ground is 150 volts or less and equipment grounding or double-insulation is provided, but the use of a Class A ground-fault circuit-interrupter is not practical.

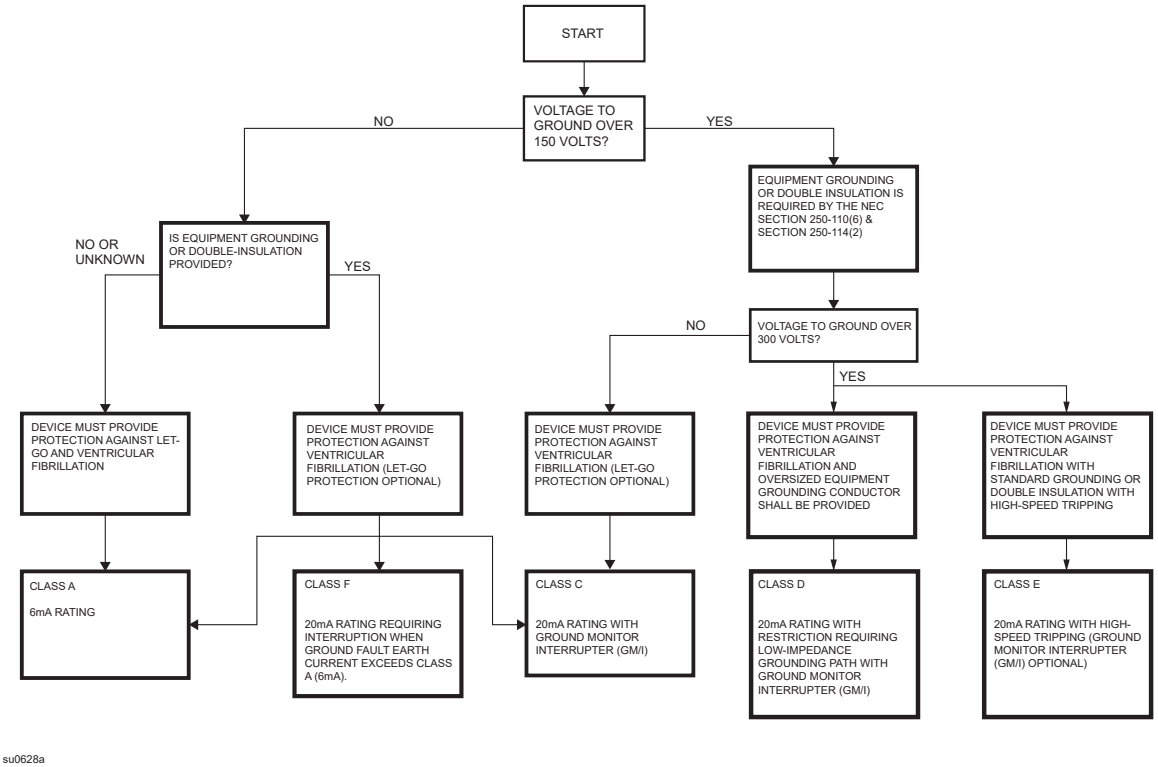
NFPA 70®, *National Electrical Code®*, and NEC® are registered trademarks of the National Fire Protection Association, Quincy, MA.

1.2 Ground-fault circuit-interrupters addressed by these requirements are divided into specified class designations, Class C, D, E and F, based upon voltage rating and the characteristics of the grounding circuit. Some are intended for use in circuits where grounding is not provided to the load but double-insulation is provided.

1.3 These ground-fault circuit-interrupters are intended to be applied on circuits as shown in Figure 1.1. The requirements for Class A ground-fault circuit-interrupters are in Ground-Fault Circuit-Interrupters, UL 943.

**Figure 1.1**

**Application of GFCIs**




UL COPYRIGHTED MATERIAL – NOT AUTHORIZED FOR FURTHER REPRODUCTION OR DISTRIBUTION WITHOUT PERMISSION FROM UL LLC