# GROUND-CONDUCTOR MONITORING



Continuously monitor the integrity of the ground conductor to protect portable equipment from hazardous voltages caused by ground faults.

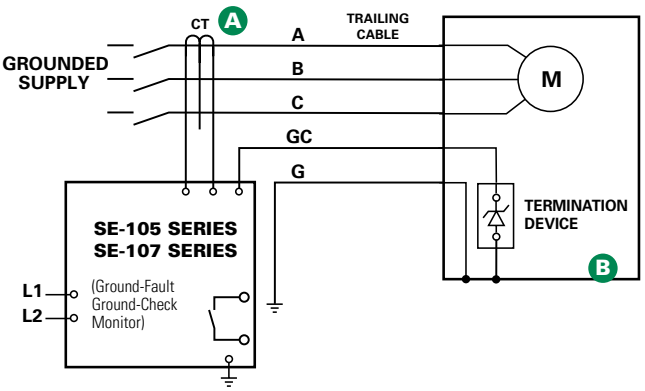


For More Information…
and to download our technical note on Ground-Fault Ground-Check, visit
**Littelfuse.com/Ground-faultPaper**

# SE-105 / SE-107 SERIES

## Ground-Fault Ground-Check Monitor

## Simplified Circuit Diagram




## Ordering Information

| ORDERING NUMBER | CONTROL POWER |
|---|---|
| SE-105 | 120 Vac |
| SE-105D | 120 Vac/Vdc |
| SE-105E | 240 Vac |
| SE-107 | 120 Vac |
| SE-107D | 120 Vac/Vdc |
| SE-107E | 240 Vac |

Consult manual online for additional ordering options.

| ACCESSORIES | REQUIREMENT |
|---|---|
| CT200 Series | Required |
| 1N5339B | Included |
| SE-TA6, SE-TA6-SM | Optional |
| SE-TA6A Series | Optional |
| RK-102, RK-105, RK-105I | Optional |
| RK-13 | Optional |
| PPI-600V | Optional |

## Description

The SE-105/SE-107 is a combination ground-wire monitor and ground-fault relay for resistance-grounded systems. It continuously monitors the integrity of the ground conductor to protect portable equipment from hazardous voltages caused by ground faults. The SE-105/SE-107 is an excellent choice for trailing cables 5 kV and under in underground mining applications. For higher voltages or long-cable applications, see the SE-134C/SE-135.

## Features & Benefits

| FEATURES | BENEFITS |
|---|---|
| **Adjustable pickup (0.5, 2.0, 4.0 A)** | Unit can be used on a wide variety of trailing cable applications |
| **Adjustable time delay (0.1-2.0 s)** | Adjustable trip delay for quick protection and system coordination |
| **Harmonic filter** | Prevents false operation |
| **Zener-characteristic termination assembly** | Provides reliable ground-check loop verification |
| **Fail-safe ground-check circuit** | Ensures ground-check circuit remains safe even in the event of equipment failure |
| **Conformal coating** | Additional coating protects circuit boards against harsh environment |
| **SE-105: selectable UV- or shunt-trip mode** | Provides flexibility for different applications |
| **SE-107: UV-trip mode only** | Eliminates chance of unauthorized change to trip circuit |

## Accessories

**A** **CT200 Series Current Transformer**
Required CT detects ground-fault current.

**B** **1N5339B Termination Device**
5 W axial-lead ground-check termination; included with SE-105/SE-107.

**SE-TA6 Termination Assembly**
Optional termination assembly with convenient terminals and mounting holes

**SE-TA6-SM Stud-Mount Termination Assembly**
Optional 50 W ground-check termination that is robust and compact for submersible pumps. Wire lead simplifies installation.

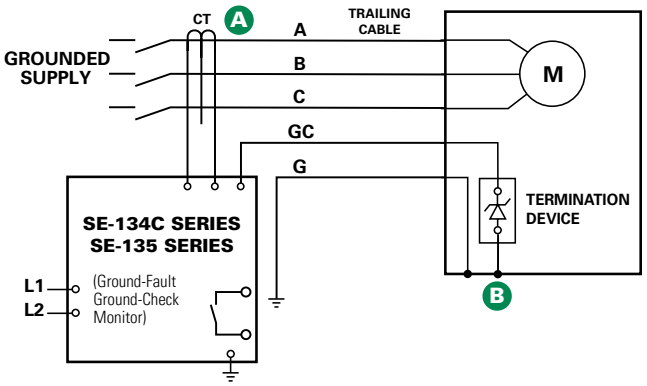
## Specifications

| | |
|---|---|
| **IEEE Device Numbers** | Checking or Interlocking Relay (3GC), Ground Fault (50G/N, 51G/N) |
| **Input Voltage** | See ordering information |
| **Dimensions** | **H** 150 mm (5.9"); **W** 109 mm (4.3"); **D** 100 mm (4.0") |
| **Trip Level Settings** | 0.5, 2.0, 4.0 A |
| **Trip Time Settings** | 0.1-1.0 s |
| **Contact Operating Mode** | Selectable fail-safe or non-fail-safe (SE-105) Fail-safe only (SE-107) |
| **Harmonic Filtering** | Standard feature |
| **Reset Button** | Local and remote |
| **Output Contacts** | Isolated Form A |
| **Approvals** | CSA certified, UL Listed (E340889), C-Tick (Australian) |
| **Conformally Coated** | Standard feature |
| **Warranty** | 5 years |
| **Mounting** | Surface |

# SE-134C / SE-135 SERIES

## Ground-Fault Ground-Check Monitor

## Simplified Circuit Diagram




## Ordering Information

| ORDERING NUMBER | OPTION | POWER SUPPLY | COMM |
|---|---|---|---|
| SE-134C | Blank or XGC | 0=120/240 Vac/Vdc<br>1=24/48 Vdc (1) | 0=None |
| SE-135 | Blank or XGC | 0=120/240 Vac/Vdc<br>1=24/48 Vdc (1)(2) | 0=None<br>3=Ethernet (1) |

| ACCESSORIES | REQUIREMENT |
|---|---|
| SE-CS10 Series | Required |
| SE-CS40 Series (for SE-135) | Optional |
| SE-TA6A Series (for SE-134C) | Required |
| SE-TA12A/SE-TA12B Combination (for SE-134C) | Optional |
| SE-TA12A Series (for SE-135) | Required |
| SE-IP65CVR-G | Optional |
| RK-132 | Optional |
| PPI-600V | Optional |

(1) CE/C-Tick not available.
(2) Not available with Ethernet option 3.
(3) See ordering information.
See Current Transformer Selection Guide and Accessory Information.

## Description

The SE-134C/SE-135 is a microprocessor-based, combination ground-wire monitor and ground-fault relay for resistance-grounded or solidly grounded systems. It continuously monitors the integrity of the ground conductor to protect portable equipment from hazardous voltages caused by ground faults. The SE-134C/SE-135 is field proven in monitoring trailing cables on large mobile equipment such as drag-lines, mining shovels, shore-to-ship power cables, dock-side cranes, stacker-reclaimers, submersible pumps, and portable conveyors.

## Features & Benefits

| FEATURES | BENEFITS |
|---|---|
| **Adjustable pickup (0.5-12.5 A for SE-CS10) (2 - 50 A for SE-CS40)** | Unit can be used on a wide variety of trailing cable applications |
| **Adjustable time delay (0.1-2.5 s)** | Adjustable trip delay for quick protection and system coordination |
| **Output contacts** | Separate annunciation of ground-fault and ground-check faults |
| **Ground-check LED indication** | Indication of open or short ground-check wire makes it easier to find faults |
| **CT-loop monitoring** | Alarms when CT is not connected |
| **High-induced-ac rejection** | Makes unit suitable for applications with high voltages and long cables |
| **DFT (Harmonic) filter** | Prevents false operation |
| **Zener-characteristic termination assembly** | Provides reliable ground-check loop verification |
| **Fail-safe circuits** | Ensures ground-check and ground-fault circuits remain safe even in the event of equipment failure |
| **Conformal coating** | Additional coating protects circuit boards against harsh environment |
| **XGC option** | Increases maximum cable length for ground-check monitoring (10 km typical) |

## Accessories

A 

**SE-CS10 or SE-CS40 Series Ground-Fault Current Transformer**
Required zero-sequence current transformer detects ground-fault current.

B 

**SE-TA6A Series, SE-TA12A Series Termination Assembly**
Required termination assembly; temperature compensated.

## Specifications

| | |
|---|---|
| **IEEE Device Numbers** | Checking or Interlocking Relay (3GC), Ground fault (50G/N, 51G/N) |
| **Input Voltage** | 65-265 Vac; 85-275 Vdc; 18-72 Vdc |
| **Dimensions** | **H** 213 mm (8.4"); **W** 99 mm (3.9"); **D** 132 mm (5.2") |
| **Trip Level Settings** | 0.5-12.5 A for SE-CS10, 2 - 50 A for SE-CS40 |
| **Trip Time Settings** | 0.1-2.5 s |
| **Contact Operating Mode** | Selectable fail-safe or non-fail-safe |
| **Harmonic Filtering** | Standard feature |
| **Test Button** | Standard feature |
| **Reset Button** | Standard feature |
| **Output Contacts** | Isolated Form A and Form B, Two Form C |
| **Approvals** | CSA certified, UL Listed (E340889), C-Tick (Australia)(3), CE(3) |
| **Conformally Coated** | Standard feature |
| **Warranty** | 5 years |
| **Mounting** | Panel, Surface |
| **GC Trip Resistance** | 28Ω (Standard), 45Ω (XGC Option) |