

# Intelli-Arc™ Diagnostic Tool Instruction Sheet



Handheld device

Base unit

	<b>⚠ DANGER</b>
	<b>Hazardous voltage. Will cause death or serious injury.</b>  This device necessitates working on or near equipment with exposed electrical hazards. Turn off and lock out power supplying equipment before connecting Arc Fault Diagnostic Tool. Ensure a safe work zone before re-energizing equipment for testing purposes.

### SAFETY INSTRUCTIONS

1. Arc Fault Diagnostic Tool must be connected and operated only by a qualified electrician.
2. To be used only on a single phase 120VAC grounded circuit.
3. The Arc Fault Diagnostic Tool is not a protective device. For use only on the load side of a listed branch circuit protection device rated at 20 Amperes or less.
4. To prevent severe shock or electrocution, always turn the power off before working on or inside equipment.
5. It is the qualified electrician's responsibility to ensure a secured, safe working area around the enclosure before turning on power to the equipment.
6. Arc Fault Diagnostic Tool is intended for temporary installation only. Never leave the work site with the Arc Fault Diagnostic Tool connected.
7. Always replace all doors and covers before departing from the work site.

### ⚠ CAUTION

**Hazard of Equipment Damage.**

**Will cause Damage to the Arc Fault Diagnostic Tool.**

**Do not reverse-feed or back-wire. Do not subject to megger, high voltage, or hi-pot test. Remove the Arc Fault Diagnostic Tool before high-potting occurs on the system or on the circuit.**

### General

The Intelli-Arc™ Diagnostic Tool is intended to analyze house hold circuits to localize arc faults. It can indicate early warnings of possible arcing before an AFCI breaker would trip. The Intelli-Arc Diagnostic Tool may show contributions from different loads that each individually would not create a trip condition. However, the combination of these loads may create a situation that results in a trip condition of an AFCI breaker.

The Intelli Arc Detector does NOT protect from arcing in any circuit and it does not prevent any damage that an arc fault can cause. It is a measurement tool to support the detection of an arc fault.

The Intelli-Arc Diagnostic Tool is for indoor use only for measurements of category III in branch circuits of maximum 20A rated current.

If this product is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment

#### Radio Frequency Interference Warnings & Instructions

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

One Intelli-Arc Diagnostic Tool set consists of one Carrying Case Including:

1. 1 Intelli-Arc Diagnostic Tool IDT5000B – Base Unit
2. 1 Intelli-Arc Diagnostic Tool IDT5000H – Handheld Unit
3. 4 wires AWG 12, 4-5 ft. length
4. 2 AA alkaline batteries for the Handheld Unit
5. 8 replacement screws for the terminal lugs of the Base Unit
6. 1 Instruction Sheet

For technical support related to the operation of this device please contact:

**Siemens Energy & Automation, Inc.**

3333 Old Milton Parkway

Alpharetta, GA 30005

1-800-964-4114

[info\\_sea@siemens.com](mailto:info_sea@siemens.com)

### Set-Up Instructions

See Figures 1 & 2

1. Turn "OFF" and lock out the power to the equipment in which the Arc Fault Diagnostic Tool is to be connected.
2. Move the handle of the breaker on the circuit to be analyzed to the "OFF" position. This circuit breaker serves as the disconnect device for the Arc Fault Diagnostic Tool.
3. Remove the load side hot and neutral wires from the breaker of the branch circuit to be tested. Panelboard neutral (pigtail) wire must remain connected to panel neutral bar.
4. Connect the two wires removed in step 3 to the load terminals of the base unit. Connect 12 AWG copper conductors from the load terminals of the AFCI breaker to be tested to the line terminals of the Arc Fault Diagnostic Tool base unit.
  - a) Base unit of Diagnostic Tool draws power from the power line. No batteries are used in this device.
  - b) Each connection between Arc Fault Diagnostic Tool and the circuit breaker must have a length between 4 and 5 feet.
  - c) Strip insulation of wires should be limited to a length of 3/8 inch. See Arc Fault Diagnostic Tool base unit label for stripping guide.
  - d) Ensure that wire connectors are properly torqued. Do not over-torque. See Arc Fault Diagnostic Tool base unit label and circuit breaker label for the respective torque criteria.
  - e) Wiring scheme to connect base unit of Diagnostic Tool:

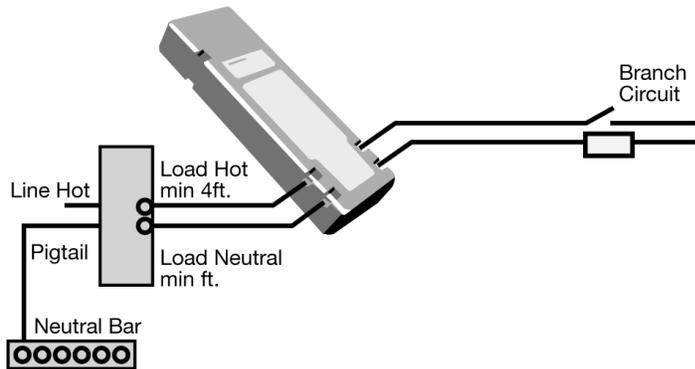


Figure 1 - AFCI or GFCI Breaker

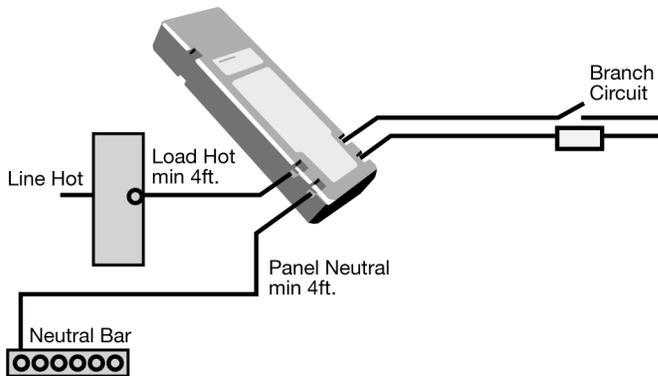


Figure 2 - Conventional Breaker

5. For strain relief a lanyard opening is provided to mount the Base Unit in a safe and convenient location.
6. Establish a secured, safe work area around the load center or panelboard.
7. While exercising caution, turn power back on to the load center or panelboard.
8. Follow operating instructions.

Turn off and lock out power supplying the device before removing base unit. Restore all branch circuit connections and close cover if testing is complete. Return to step 1 of Setup Instructions to test another branch circuit.

### Operating Instructions

1. De-energize all individual loads on the branch circuit under evaluation at the outlet (switch, receptacle, junction box, work box, etc.).
2. While exercising caution, turn on the branch circuit breaker
3. Turn "ON" the breaker supplying power to the branch circuit under evaluation.
4. Turn "ON" the handheld device (Fig. 3). Note: To confirm functionality of all LEDs, see LED Test Procedure below.

Figure 3



5. The communication LED will start blinking after the handheld establishes communication with the base unit. The LED will continue blinking as long as the handheld maintains communication.
6. Energize, and then de-energize loads one by one on the branch circuit being evaluated, observing LED indications on handheld device after each load is energized and de-energized. (See "LED Indications" for more details.)
7. The "GF" and "AF" LEDs will lock in the top (red) position when any event causes the device to read maximum levels, even if the event ceases to exist. Press the "CLEAR" button to continue evaluation of the branch circuit.
8. Turn off and lock out power supplying the device before removing base unit. Restore all branch circuit connections. Close cover if testing is complete or return to step 1 of Setup Instructions to test another branch circuit.
9. Always remove Arc Fault Diagnostic Tool and replace load center or panelboard cover before leaving the work site.

#### LED Test Procedure

1. Turn "OFF" handheld device.
2. Press and hold "CLEAR" button on handheld.
3. Press "PWR" button on handheld device, while continuing to hold "CLEAR" button.
4. The LED columns will light up one by one and each top LED will remain on so long as the "CLEAR" button is pressed.
5. If any LED fails to illuminate during the procedure then the handheld device must be replaced.
6. Once the "CLEAR" button is released the top LEDs will clear and the handheld is ready for operation.

### LED Indications

Three sets of LED indicators are provided on the handheld device for use in troubleshooting branch circuit issues. These three indications give information regarding current ("AMPS"), ground fault level ("GF"), and arc fault level ("AF").

#### Current ("AMPS")

1. The full scale current for this LED indication is 20+A.
2. LED indicators do not increase by uniform intervals.
3. The 5 A point is marked on handheld device for reference.

#### Ground Fault ("GF")

1. The full scale current for this LED indication is 50+ mA.

#### Arc Fault ("AF")

1. This LED indication does not display in reference to current level but rather in severity of events, with a full scale reading (red LED) representing an event that is very likely to cause an AFCI device to trip.
2. Partial readings (yellow LEDs) may or may not be suspect issues to evaluate.
3. Transitional events, i.e. turning on an appliance, are likely to register as some low level on the Arc Fault scale.

### Technical Specification

Operating ambient temperature:	5°C – 40°C (41°F – 104 °F)
Maximum relative humidity:	80% for temperatures up to 31°C (88°F) decreasing linearly to 50% at 40°C (104°F)
Environment:	Indoor use at altitude up to 2000 m (6561 feet)
Range of operating voltage:	108V – 132V
Pollution degree:	Pollution degree 2
Wire requirements:	4 Wires 4 – 5 feet length 60 / 75°C CU#14-8 / AL#10-8
Maximum torque for terminal lugs:	25 lb-in
Handheld Batteries:	The Diagnostic Tool handheld device operates on 2 AA batteries. These batteries may be accessed from the back side of the handheld device. See Figure 4 below. For battery disposal, please follow instructions of battery manufacturer.
Battery types:	Alkaline

Figure 4

