



USER MANUAL

Intelli-Arc[®] Diagnostic Tool

Revision 1.1

usa.siemens.com/intelli-arc

SIEMENS

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SECTION 1.0

Introduction

The Intelli-Arc is a device developed to help troubleshoot arc-fault, ground-fault, and overcurrent issues in residential applications. All data is transferred wirelessly using Bluetooth Low Energy (BLE) from the Intelli-Arc unit to a cell phone running the Siemens *Intelli-Arc* mobile application. Data can then be displayed and interpreted on the phone to help diagnose root causes in the field. If needed, data captures can be packaged and emailed to Siemens for more in-depth offline analysis.

1.1 Modes of Operation

1.1.1 Dashboard

The Intelli-Arc device described in this document is a second-generation product. The first-generation product was deployed in 2009 and there are still some used in the field today. Since then, advances in technology have resulted in a Gen 2 product that has a much wider and more powerful range of features. However, users comfortable using the Gen 1 product can start by accessing the mobile app's "Dashboard" tab – a display very similar to the Gen 1 experience (with some new features).

The Gen 1 display consisted of a simple bar graph that indicated the RF Arc Noise level. As that noise intensifies, the number of bars on the display increases and colors go from green (low RF Arc Noise), to yellow (starting to look suspicious), to red (conditions very closely resemble an arc). In addition, this mode has a single red/green indicator to show the presence of a ground to neutral fault. This indicator is green when no ground to neutral fault exists, and red when a ground to neutral fault exists.

1.1.2 Live Data Mode

The information obtained from this mode is very similar to Dashboard Mode, but the way the information is displayed is much different. Where Dashboard Mode displayed a bar graph, Live Data Mode generates a waveform display of the measured arc energy. This can be very useful in troubleshooting because arcs can have different shapes but have common characteristics that can be determined by analyzing the graphed waveform.

1.1.3 Record Mode

Record Mode can capture actual trip events. Where the other modes can be useful for determining if conditions resemble arc characteristics, only the Intelli-Arc's Record Mode will display the exact conditions that caused the breaker to trip. Captured events can be uploaded to a mobile device using BLE, where they can be displayed and analyzed locally on the mobile device. Captures can also be packaged and emailed to Siemens Technical Support for offline analysis. In the case of Siemens Technical Support, offline analysis can help determine if this trip was due to an actual arc event or an unwanted trip event.

Record Mode makes the Intelli-Arc an extremely powerful tool for troubleshooting. It is the only tool available that enables the user to see waveforms related to an arc-fault or ground-fault breaker trip.

SECTION 2.0

Safety Precautions

	 DANGER
	<p>Hazardous Voltage. Will cause death or serious injury. Only to be used according to instructions.</p> <p>Turn off and lock out power supplying equipment before connecting in a load center..</p>

Safety Instructions

1. This product must only be used by a Qualified Person, e.g. a licensed electrician.
2. To be installed only on a single phase 120VAC grounded system.
3. To prevent severe shock or electrocution, always turn the power off before working on or inside equipment. Do not connect the Intelli-Arc to a live circuit. Ensure branch circuit is de-energized before connecting or disconnecting.
4. Replace all doors and covers before departing the work site. The Intelli-Arc is only for temporary use. The Intelli-Arc is not designed for permanent Installation and must not be left unattended.
5. Not for use in wet or damp locations.
6. The Intelli-Arc must only be connected downstream of a listed circuit breaker with a maximum overcurrent rating of 20A.
7. It is recommended that the Intelli-Arc be connected near the circuit-breaker, should any condition arise where the branch circuit must be de-energized.
8. The Intelli-Arc does not have a protective earth ground connection at the banana jacks. A protective earth ground connection is available on the power inlet and receptacle. This protective earth ground connection is only present at the receptacle if the power cord connects the Intelli-Arc to a correctly bonded earth connection at the branch circuit receptacle.
9. The battery and fuse must only be replaced after the Intelli-Arc has been disconnected from all circuits and no live voltage is present.
10. Provided cables may only be used with the Siemens Intelli-Arc, model IDT6000. Use with other products may be hazardous.
11. Main safety disconnection of the product is the provided cables. In CAT II mode, disconnection of power cord will safely disconnect power from the Intelli-Arc. In CAT III mode, disconnection of the banana plug cords will safely disconnect power from the Intelli-Arc.



WARNING

Damage to equipment

This device is only for use on single phase 120V circuits. DO NOT connect to higher voltage electrical supplies. Connecting this device to any circuit with voltages above 120V will cause damage to the equipment and could result in injury or death.



CAUTION

DO NOT use if device appears damaged in any way. Risk of injury or death.

Hazard of Equipment Damage. Will cause Damage to the Intelli-Arc. Do not reverse-feed or back-wire. Do not subject to megger, high voltage, or hi-pot test.



DANGER

Risk Of Danger.

It is important that users of this device read, understand, and follow all warnings, cautions, safety information, and instructions in this manual and on the product before operating this device. Failure to follow instructions could result in death or serious injury.

SECTION 3.0

User Manuals, Tutorials, and Reference Documents

3.1 Quick Start Guide

usa.siemens.com/Intelli-Arc-QSG

One page document to keep handy.

This is not a replacement for the complete user manual but highlights important features.

A printed copy is also included with your Intelli-Arc.



3.2 Complete User Manual

usa.siemens.com/Intelli-Arc-manual

The User Manual should be consulted for all installation and safety instructions.

Get the most up-to-date digital version, including an expanded troubleshooting section, using the link or QR code above. A printed copy is also included with your Intelli-Arc.



3.3 Product Website

usa.siemens.com/Intelli-Arc

All Intelli-Arc resources can be found on the product website.



3.4 3D Interactive Instructions powered by the BILT app

<https://biltapp.link/kZ46>

Please scan the QR code below or access the link directly:

Scan for easy 3D instructions

Tap. Zoom. Rotate with official interactive instructions on the BILT app.



BILT.



SECTION 4.0

Specifications

Category	Information
Product Model / Catalog Number	IDT6000
Measurement Category	CAT II at power inlet and receptacle, CAT III at banana jacks
Pollution Degree	Pollution Degree 2
Input Voltage	120VAC
Output Voltage	120VAC (same as input)
Frequency	60 Hz
Current Consumption	26mA
Current Rating	20A at banana jacks, 15A at receptacle
Wireless Communication	BLE 5.2 (Bluetooth Low Energy)
Included Accessories	Power Cord – Input side NEMA 5-15P, Output side IEC 60320 C13, CAT II. Banana plug cords – Shrouded Banana Plug to Inline Splice Connector, rated for 20A, 120VAC, CAT III.
Output Connections	Receptacle, NEMA 5-15R, 120VAC, 15A, CAT II; banana jack, 120VAC, 20A, CAT III
Input Connections	Inlet, IEC C14, 120VAC, 15A, CAT II; banana jack, 120VAC, 20A, CAT III
CAT II Site Connection	The Intelli-Arc must only be connected downstream of a Listed circuit breaker with a maximum overcurrent rating of 15A. Receptacle NEMA 5-15R, 120VAC, 15A, with bonded protective earth connection
CAT III Site Connection	The Intelli-Arc must only be connected downstream of a Listed circuit breaker with a maximum overcurrent rating of 20A. Allowable circuit wiring: solid wire, size 12-14AWG, with wire strip length of 0.43 inches (11 mm)
Power	Through 120V line input at terminals or power inlet, or through battery (not provided)
Battery Type	Size PP3 (17.5 mm x 26.5 mm x 48.5 mm) Type IEC 6LR61 / ANSI 1604A, 9V, Type IEC 6LR61 / ANSI 1604A, 0.5Ah Alkaline Battery. Battery is not provided. For battery disposal, please follow instructions of battery manufacturer; Battery is not recyclable. To prevent damage to the Intelli-Arc, always use a new battery and do not leave the battery installed for more than 30 days.
Fuse	Size: 3AB (1/4" x 1-1/4") Rating: 500 Vac/Vdc, 25A, 30KA Interrupting Rating at 500Vac, Fast Acting Fuse is replaceable by the user, but instructions must be followed. See section "Fuse Replacement."
Buttons And Indicators	2 LEDs for power and BLE connection, push button for record mode, On/Off switch for battery power, 2 power selector switches for CAT II / CAT III mode
Wireless Certification	Bluetooth SIG
Safety Certification	UL 61010 for use in the USA and Canada
FCC Information	FCC ID YCP-STM32WB5M001
Mobile Phone Requirements	Mobile phones running one of the following operating systems, or a newer version will support the mobile app: iOS 16, Android 11
Range Of Product Wireless Connection Without Obstructions	10 m / 33 ft
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 9842 ft (3000 m)
Safety Warnings	WARNING: This product can expose you to chemicals including arsenic, which is known to the State of California to cause cancer. For more information, go to www.P65Warnings.ca.gov

Note:

MEASUREMENT CATEGORY II (CAT II) is applicable to test and measuring circuits connected directly to utilization points (socket outlets and similar points) of the low-voltage mains installation.

MEASUREMENT CATEGORY III (CAT III) is applicable to test and measuring circuits connected to the distribution part of the building's low-voltage mains installation.

SECTION 5.0

Purpose

The purpose of the Intelli-Arc Diagnostic Tool is to help a Qualified Person, e.g. a licensed electrician, identify and diagnose problems on branch circuits. AFCI and GFCI breakers monitor electrical signals on the wiring for conditions that are present during a fault event. Commonly, this is due to loose, frayed, or damaged wiring. Sometimes, this can be attributed to inadequate filtering of RF Arc Noise from devices in the home. The diagnostic tool can help pinpoint the root cause of faults or nuisance tripping in a branch circuit by indicating when RF Arc Noise levels are high.

SECTION 6.0

Description

Only Qualified Persons, e.g. Licensed Electricians, can use the Intelli-Arc tool. The tool can be used to diagnose individual loads from a receptacle on a branch circuit or at a load center.

Electrical Safety Precautions must be followed when connecting the Intelli-Arc, including using the product in a safe area free of hazards e.g. water.

The Intelli-Arc is only for temporary use. The Intelli-Arc is not designed for permanent installation and must not be left unattended when panel covers and doors are removed.

In Receptacle Mode, the Intelli-Arc can be left plugged in for extended periods of time for diagnostic testing (See Section 10.3.3 - Record - Retrieve Trip Event for more information).



Figure 1: Intelli-Arc device

SECTION 7.0

Components & Features of the Intelli-Arc Kit

The following parts are included with the product.

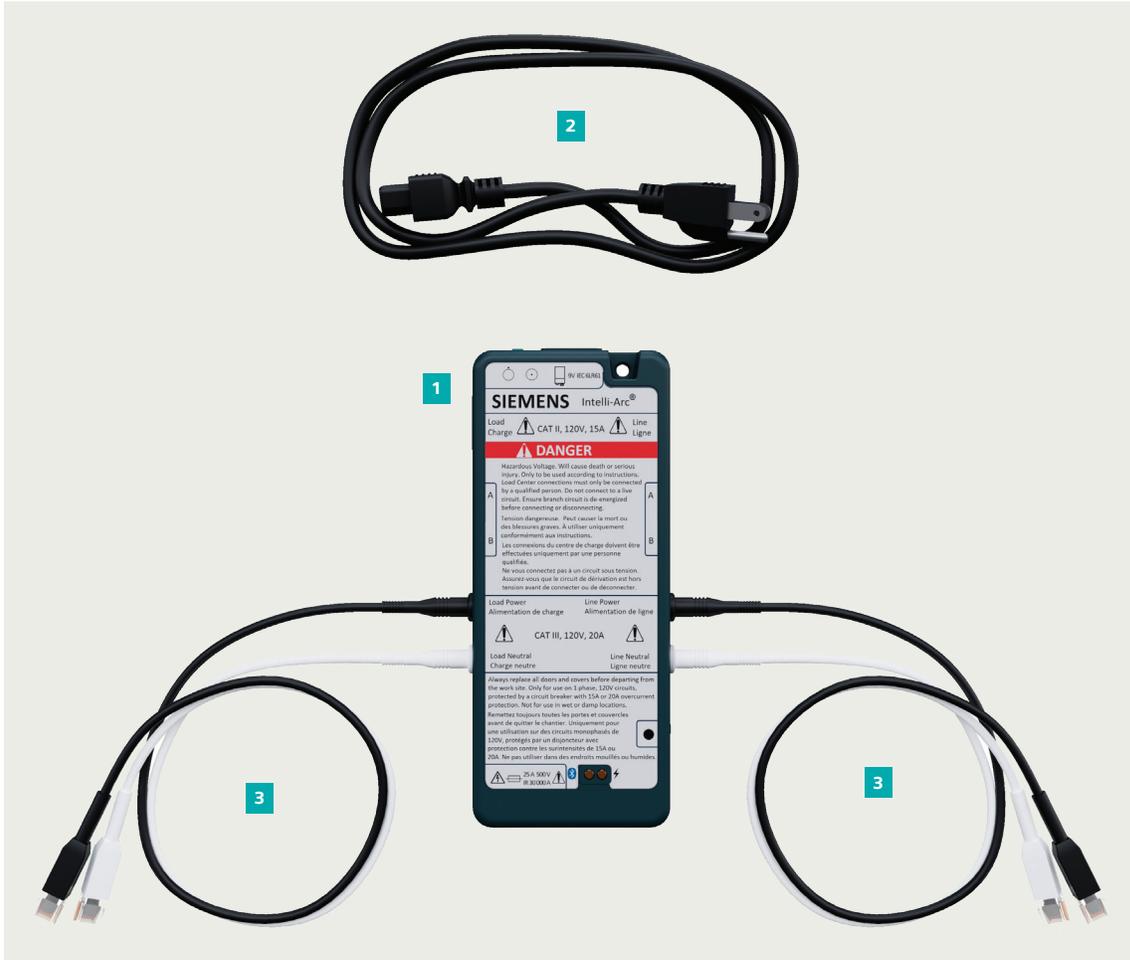


Figure 2: Intelli-Arc Kit

Item	Part Name	Notes
1	Intelli-Arc Base Unit	Included
2	Power Cord	Included
3	Banana Plug Cords (4)	Included
4	Carrying Case	Included (Not shown)

Table 1: Intelli-Arc Kit

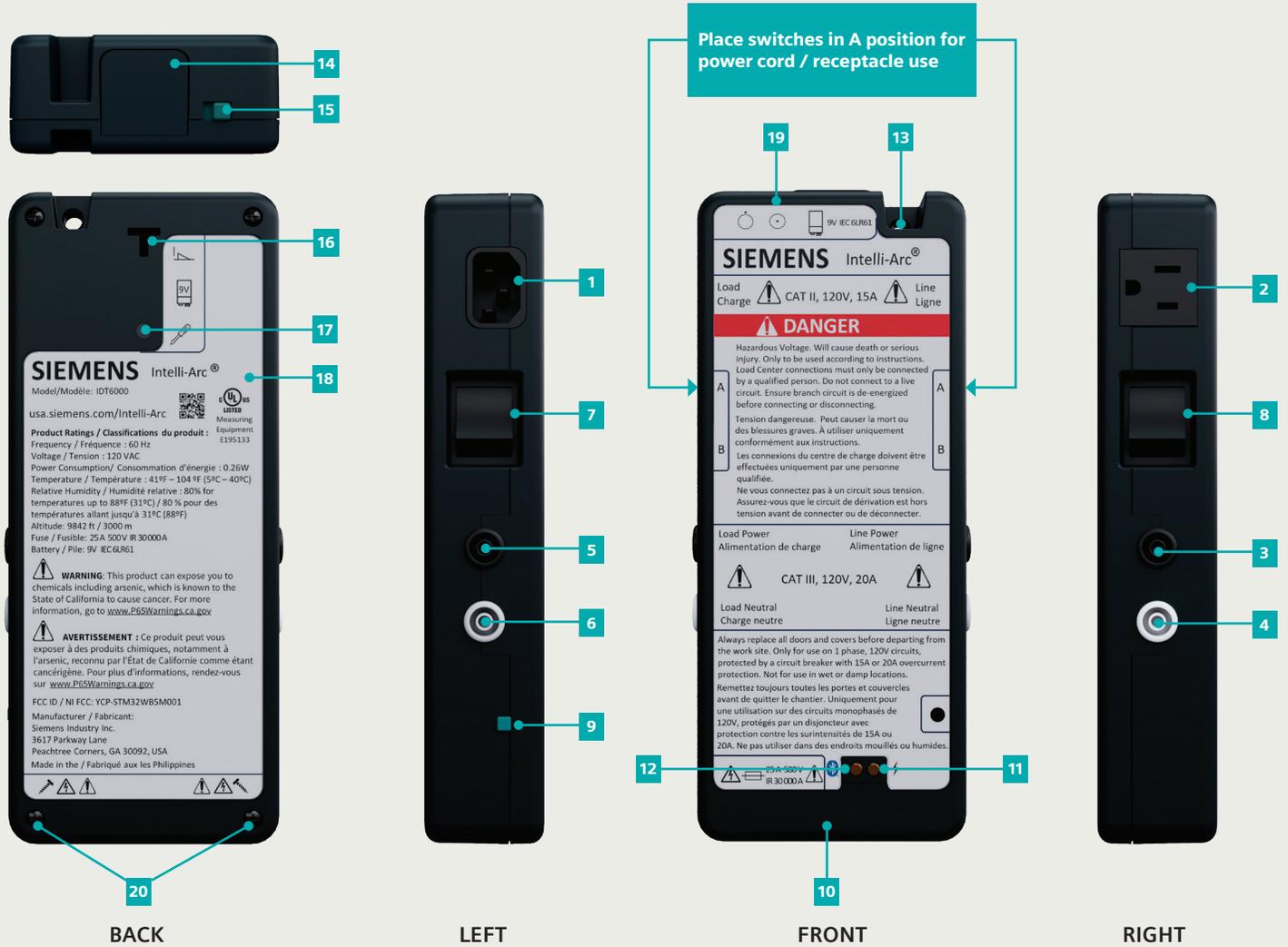


Figure 3: Intelli-Arc Features

Device Item	Description	Device Item	Description
1	Power Inlet (CAT II)	11	Power LED
2	Load Receptacle (CAT II)	12	Bluetooth LED
3	Banana Jack, Load Hot (CAT III)	13	Lanyard Slot
4	Banana Jack, Load Neutral (CAT III)	14	Battery Compartment
5	Banana Jack, Line Hot (CAT III)	15	Battery Usage Switch
6	Banana Jack, Line Neutral (CAT III)	16	Battery Compartment Latch
7	Device Power Switch (Hot)	17	Battery Compartment Screw
8	Device Power Switch (Neutral)	18	Back Label
9	Logging Button	19	Front Label
10	Device Fuse Compartment	20	Fuse Compartment Screws

Table 2: List of Intelli-Arc Features

SECTION 8.0

Product Label Legend

Symbol	Description
	Off for a part of equipment. For the battery switch, this indicates the position which disables battery power.
	On for a part of equipment. This symbol is used near the battery switch to indicate the position which enables battery power.
A	The A circuit is in the active position (CAT II).
B	The B circuit is in the active position (CAT III).
	Caution, Possibility of Danger. Hazardous Voltage. Will cause death or serious injury. Only to be used according to instructions.
	Bluetooth LED indicator
	User replaceable fuse
	Battery Compartment for Type IEC 6LR61 / ANSI 1604A, 9V, 0.5Ah Alkaline Battery
	Logging button for recording signals
	Caution, Risk of Electric Shock
	Device Power LED indicator
	Battery Compartment Screw Location
	Fuse Compartment Screw Location
	Battery Compartment Latch Location
	Equipment protected throughout by Double Insulation

Table 3: Symbols used on the Intelli-Arc

SECTION 9.0

Intelli-Arc Installation

9.1 Receptacle Installation (CAT II)



WARNING

Only qualified persons e.g. licensed electricians, should perform installation of Intelli-Arc base unit in Cat II areas.

A protective earth ground is available at the Intelli-Arc receptacle only if it is connected to a circuit with a correctly bonded earth connection. The power cord is not user replaceable or repairable. Use of improper power cord may result in injury or death. Contact Siemens support for replacement parts.

Note:

MEASUREMENT CATEGORY II (CAT II) is applicable to test and measuring circuits connected directly to utilization points (socket outlets and similar points) of the low-voltage mains installation.

Connection

1. Locate the circuit breaker providing power to the branch circuit to which the Intelli-Arc will be connected. It is recommended that the Intelli-Arc be connected near the circuit-breaker, should any condition arise where the branch circuit must be de-energized.
2. Switch both the line and load side rocker switches on the Intelli-Arc to the B position.
3. Use the provided 15A line side power cord to connect the Intelli-Arc to a residential 15A branch circuit receptacle. Plug the female end of cord into power inlet on the line side of Intelli-Arc base unit. See Figure 4.
4. Plug in residential load to the 15A load side receptacle on the Intelli-Arc base unit. See Figure 5.
5. To power on the unit, switch both the line and load side rocker switches to the A position. See Figure 6.

Disconnection

1. To disconnect the equipment, switch both the line and load side rocker switches on the Intelli-Arc to the B position.
2. Disconnect the residential load from the receptacle on the Intelli-Arc base unit.
3. Disconnect the plug of the power cord from receptacle. See Figure 4.

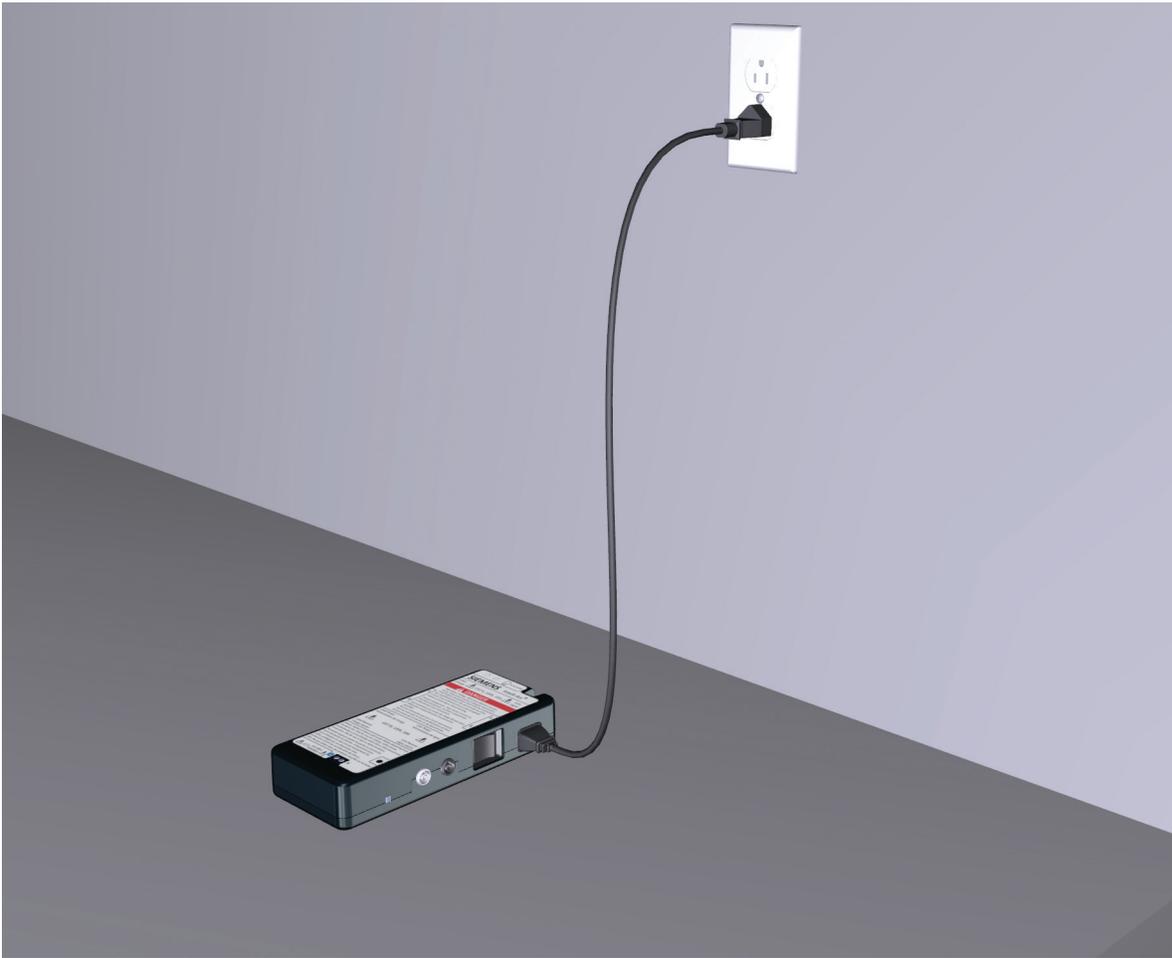


Figure 4: Intelli-Arc Line Side Receptacle Setup



Figure 5: Intelli-Arc Load Side Receptacle Setup



Figure 6: Intelli-Arc rocker switches turned ON (A position) for receptacle-power cord installation

9.2 Branch Circuit Installation (CAT III)



WARNING

Only qualified persons e.g. licensed electricians, should perform installation of Intelli-Arc base unit in Cat III areas e.g. load centers or circuit breaker panels.

A protective earth ground is not available for the cat iii application. Ensure that all circuits and equipment are de-energized before connecting or disconnecting equipment. The banana connection cables are not user replaceable or repairable. Use of improper cables may result in injury or death. Contact siemens support for replacement parts.

Note:

MEASUREMENT CATEGORY III (CAT III) is applicable to test and measuring circuits connected to the distribution part of the building's low-voltage mains installation.

Connection

1. Establish a secure, safe work area around the load center or panelboard.
2. Turn "OFF" and remove power to the equipment in which the Intelli-Arc Diagnostic Tool is to be connected, including following safe lock out procedures. See Figure 7.
3. Remove the dead front of the panel to access the load side connections of the breaker that provides power to the branch circuit to be analyzed. (NOTE: User can use Intelli-Arc lanyard to hang the base unit on the load center by reinstalling one of the load center screws) See Figures 8 and 9.
4. 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 Diagnostic Tool. Ensure breaker is deenergized before continuing. See Figure 10.
5. Switch both the line and load side rocker switches on the Intelli-Arc to the A position.
6. 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.
7. Ensure the wire strip length of all wires which will be connected to the Intelli-Arc is 0.43 inches (11 mm), and all wires are solid wires of size 12AWG or 14AWG. Other wire sizes or constructions e.g. stranded wire, are not permitted and may cause a hazard.
8. Connect the load side hot and neutral banana patch cords into the Intelli-Arc base unit. See Figure 11.
9. Connect the line side hot and neutral banana plug cords into the Intelli-Arc base unit. See Figures 12, and 13.
10. Connect the Inline Splice end of the Intelli-Arc line side patch cords to the hot and neutral load side of the breaker using 12 AWG solid wire. See Figures 11, 12, and 13.
11. Connect the two wires removed in step 6 (branch circuit hot and neutral) to the Inline Splice end of the connectors of the load site hot and neutral patch cords. An appropriate jumper wire such as a 12 AWG solid wire may be used if necessary to extend the two wires out beyond the load center panel. See Figure 14.
12. While exercising caution, turn power back on to the load center or panelboard.

13. While exercising caution, turn power back on to the circuit breaker of the branch circuit.
14. To power on the unit, switch both the line and load side rocker switches to the B position. See Figure 16.
15. Follow mobile app operating instructions for diagnosis of the circuit. These can be found in Section 10.

Disconnection

1. Switch both the line and load side rocker switches on the Intelli-Arc to the A position.
2. Power off the Branch Circuit Breaker.
3. Power off the Main Circuit Breaker of the Load Center or Panelboard.
4. Disconnect the Banana Plug end of the connectors of the Line side hot and neutral banana plug cords from the Intelli-Arc.
5. Disconnect the jumper wires from the Load side hot and neutral of the circuit breaker.
6. Disconnect the Banana Plug end of the connectors of the Load side hot and neutral banana plug from the Intelli-Arc.
7. Disconnect the Inline Splice end of the connectors of the Line side hot and neutral banana plug cords.
8. Disconnect the Inline Splice end of the connectors of the Load side hot and neutral banana plug cords.
9. Remove Intelli-Arc lanyard from Load Center.
10. Remove 12AWG solid wire connected to Load Hot and Neutral of the Branch Circuit Breaker.
11. Reconnect the Load Hot and Neutral wires of the Branch Circuit to the Branch Circuit Breaker.
12. Inspect the Load Center or Panel Board for proper connections.
13. Replace the Dead Front of the Load Center or Panel Board.



Figure 7: Panel Main Power OFF Position

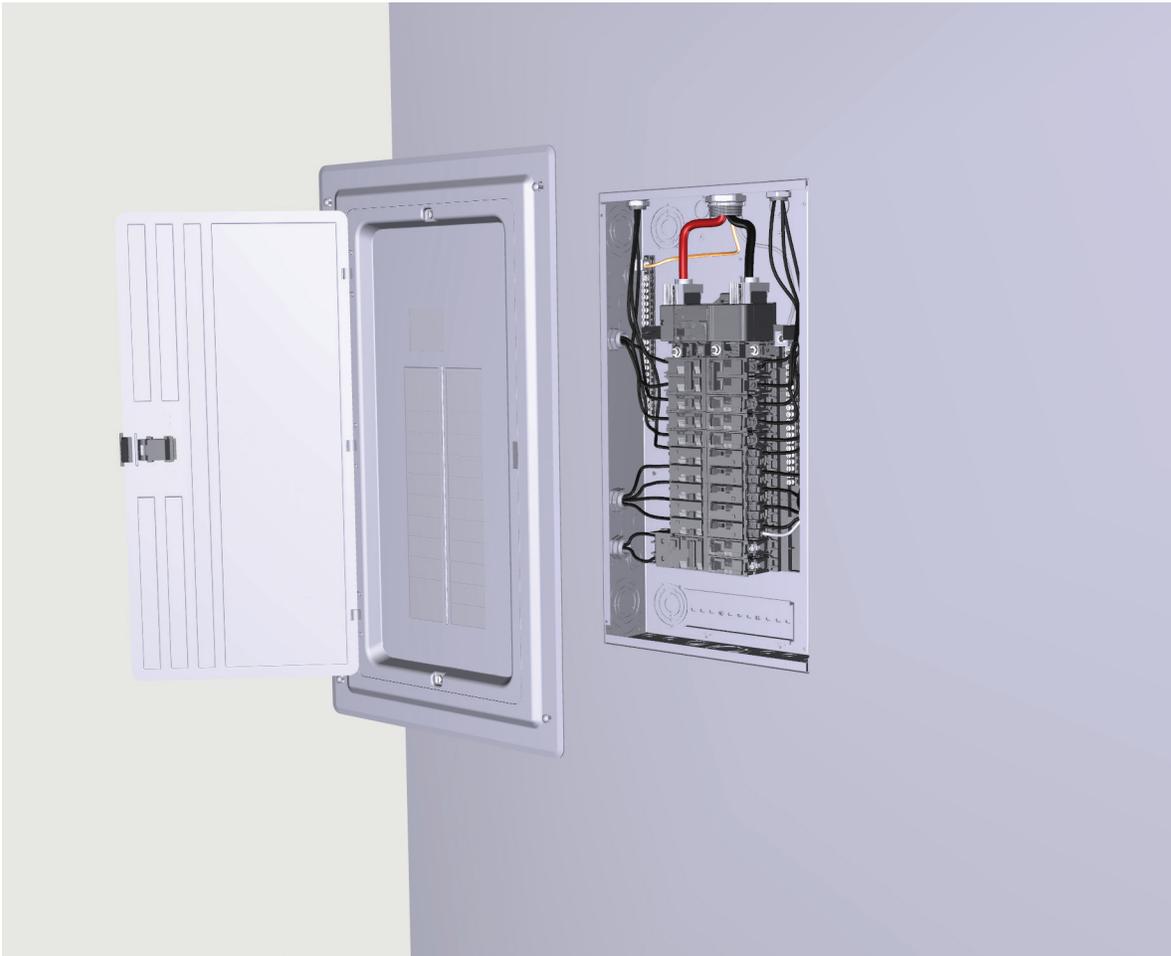


Figure 8: Panel with Dead Front Removed



Figure 9: Intelli-Arc with lanyard implementation

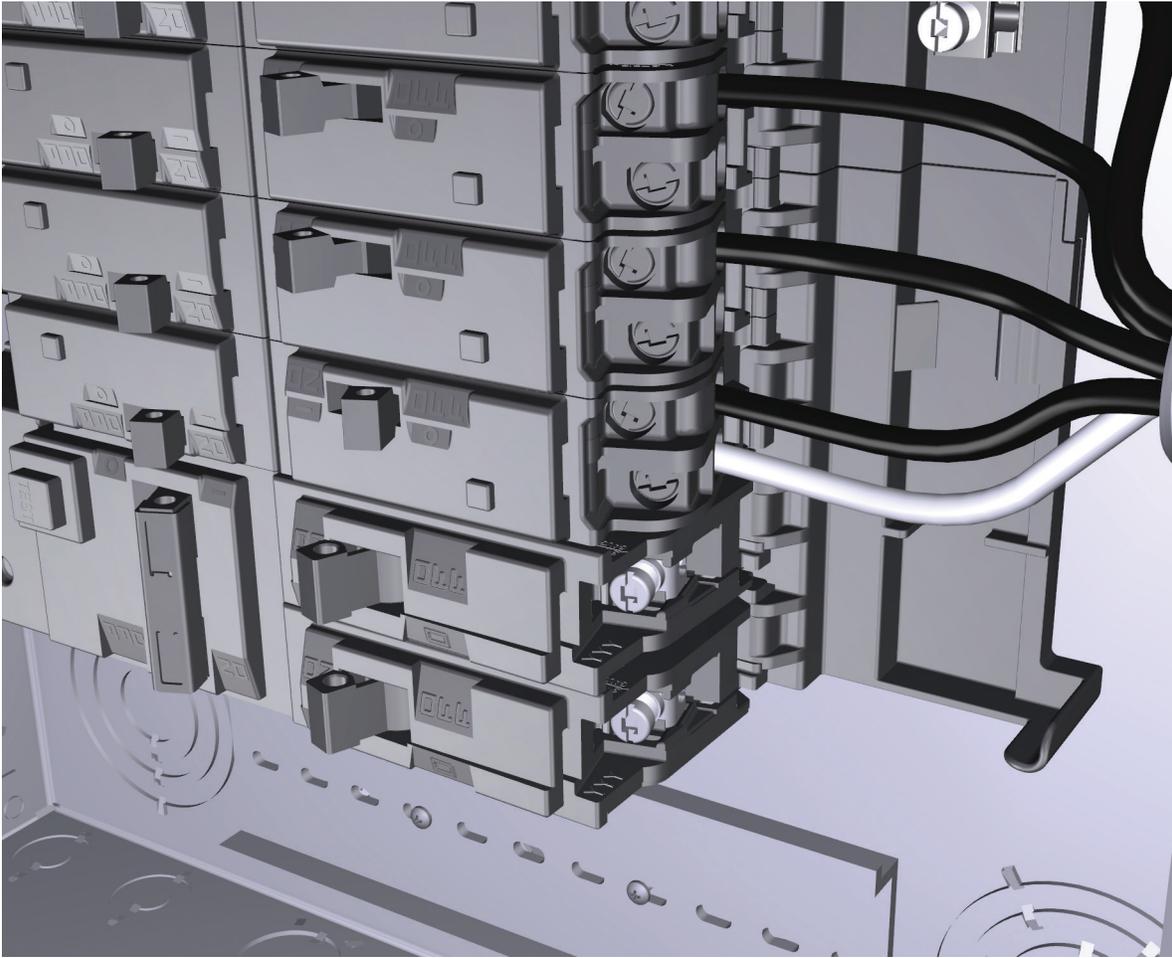


Figure 10: Switch off branch circuit

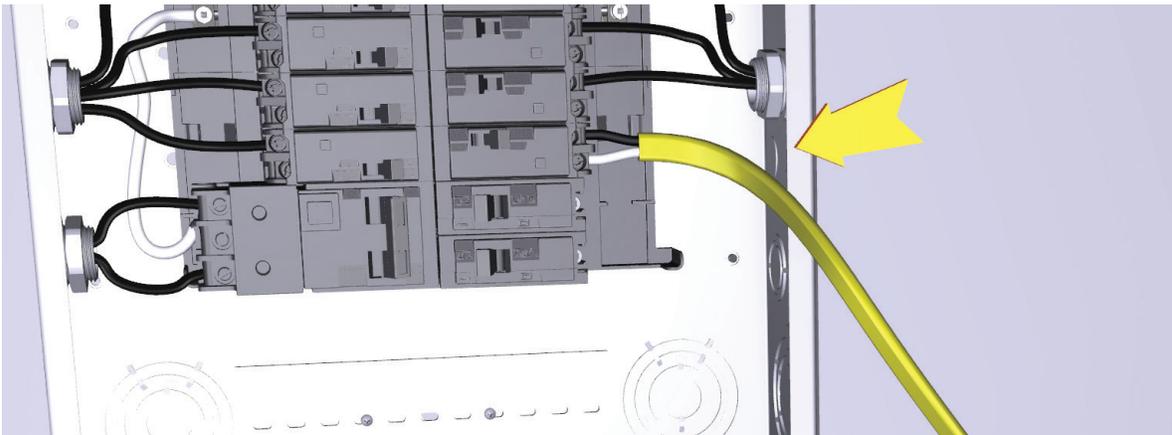


Figure 11: Wiring to Power Intelli-Arc

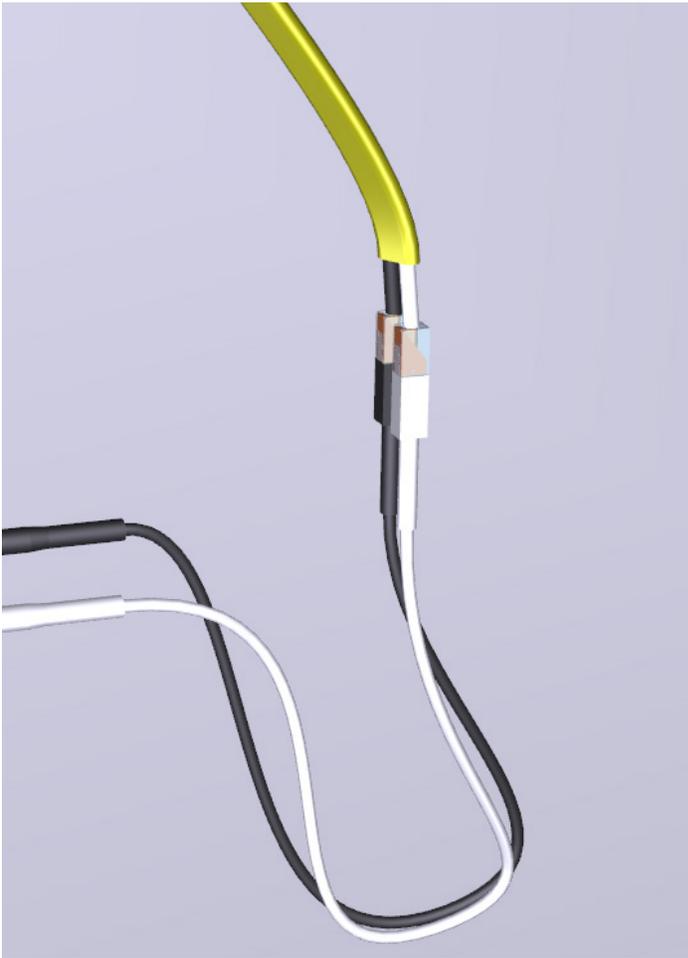


Figure 12: Intelli-Arc Line side wiring to Inline Splice connector

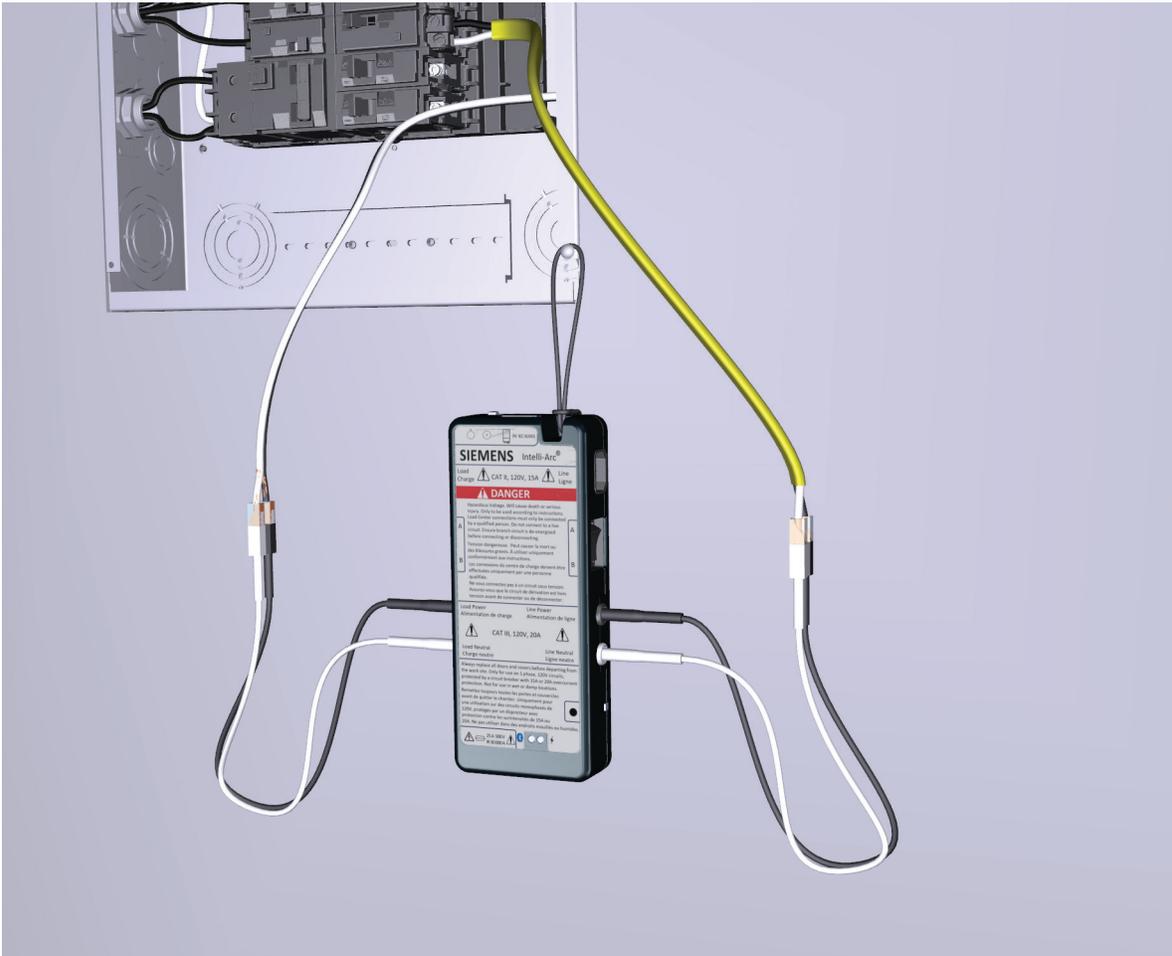


Figure 14: Intelli-Arc Line Side Wiring to Inline Splice Connector

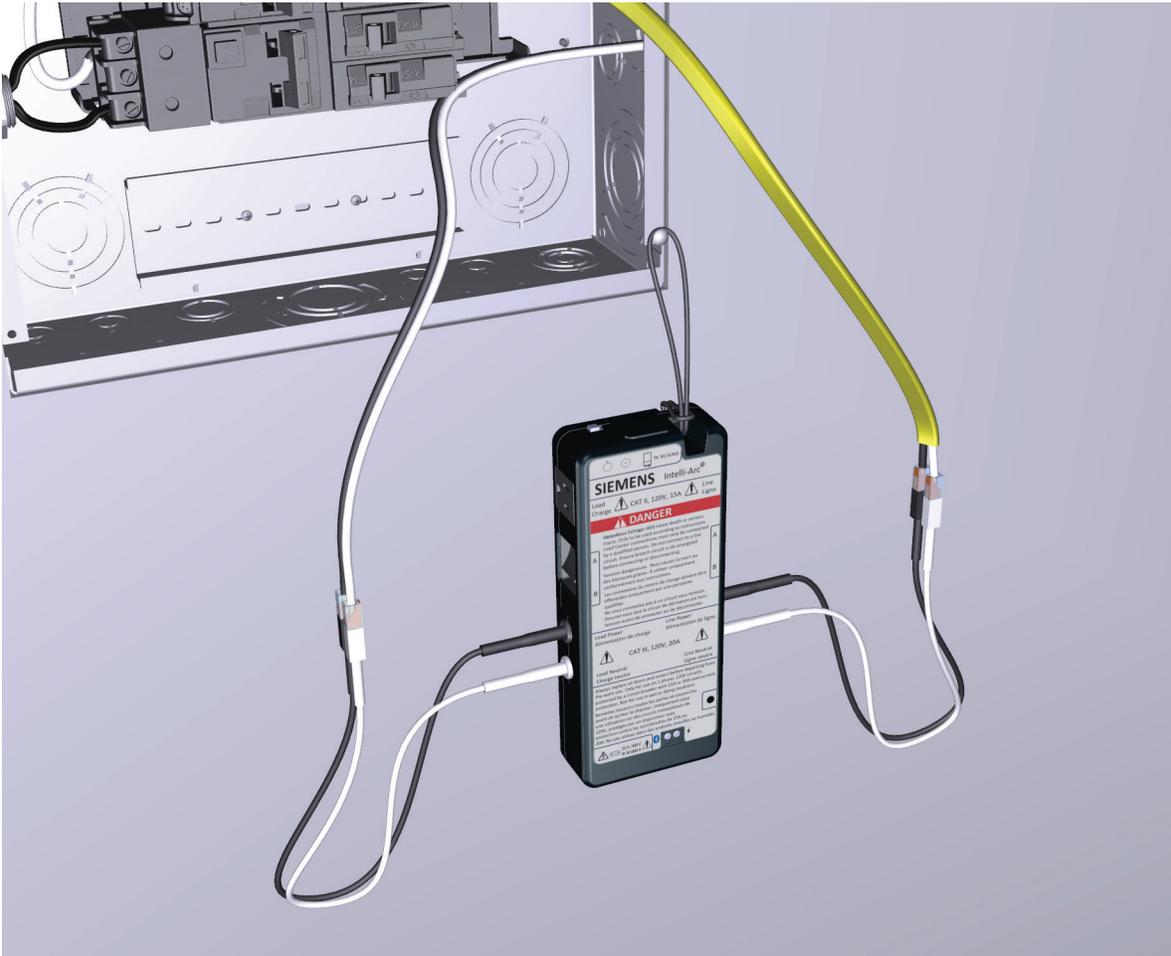


Figure 15: Intelli-Arc in CAT III installation

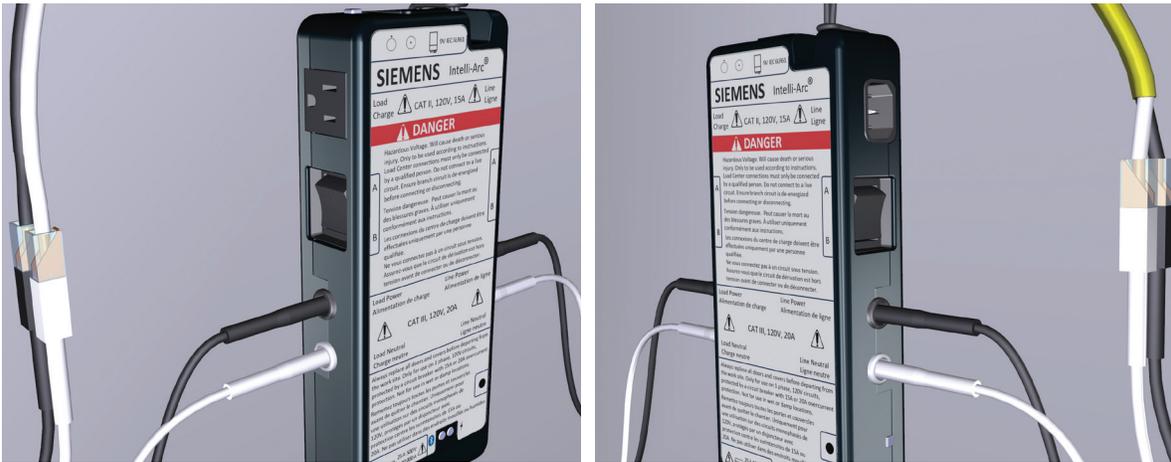


Figure 16: Intelli-Arc rocker switches turned ON (B Position) for CAT III Installation

9.3 Battery Installation and Removal

WARNING

Only qualified persons e.g. licensed electricians, should operate the Intelli-Arc.

Installation or removal of the battery without following instructions may result in injury or death. Contact Siemens support for replacement parts. Battery must be regularly inspected for damage, corrosion, or defects. If Intelli-Arc will be stored for longer than 30 days, battery must be removed from the Intelli-Arc. Improper battery care may damage the Intelli-Arc and cause injury or death.

Battery Installation

1. Ensure the Intelli-Arc is disconnected from all circuits.
2. Unscrew the battery compartment screw 2 rotations counterclockwise with a #1 Phillips screwdriver. Battery compartment screw location is indicated by symbol .
3. Press a slot screwdriver into the battery compartment latch opening until the battery compartment is loose. Battery compartment latch location is indicated by symbol .
4. Pull the battery compartment open. The battery compartment only slides out partially and is not removable.
5. For Battery Removal and storage of the Intelli-Arc longer than 30 days, remove the battery from the battery compartment.
6. For Battery Installation, insert a new battery into the battery compartment, aligning the + symbol on the battery compartment with the positive terminal of the battery.
7. Push the battery compartment closed until the latch is secured in the latch opening.
8. Screw the battery compartment screw 2 rotations clockwise with a #1 Phillips screwdriver, or until it is flush with the outside of the Intelli-Arc. Battery compartment screw location is indicated by symbol .
9. Battery power can be confirmed when the power LED with  symbol is illuminated after the battery switch is turned to the  position.

Battery specifications:

Size PP3 (17.5 mm x 26.5 mm x 48.5 mm)

Type IEC 6LR61 / ANSI 1604A, 9V, Type IEC 6LR61 / ANSI 1604A, 0.5Ah Alkaline Battery.

Battery disposal:

Battery is not recyclable. For battery disposal, please follow instructions of battery manufacturer, dispose of the battery at a facility that processes electronic waste products, or return to Siemens for disposal.



Figure 17: Unscrew the battery screw first, then press down on the latch below it.



Figure 18: Battery compartment fully open

9.4 Fuse Replacement



WARNING

Only qualified persons e.g. licensed electricians, should operate the Intelli-Arc.

Replacement of the fuse without following instructions may result in injury or death. Fuse may only be replaced with a fuse provided by Siemens. Contact Siemens support for replacement parts.

Fuse Replacement

1. Fuse should be checked and replaced if device power LED  does not illuminate when AC power is supplied and both rocker switches are in the on position for the method connected. Device is supplied with AC power when both rocker switches are in position A for connection of power cord in CAT II mode, and position B for banana plug cord in CAT III mode. See sections Branch Circuit Installation (CAT III) and Receptacle Installation (CAT II) for safe procedure to connect to AC power.
2. Ensure the Intelli-Arc is disconnected from all circuits before accessing the fuse.
3. Unscrew the fuse compartment screws (2) with a #2 Phillips screwdriver. Fuse compartment location is indicated by symbol . Fuse compartment screw locations are indicated by symbol .
4. Open the fuse compartment cover.
5. Remove the fuse.
6. Install new fuse.
7. Replace the fuse compartment cover.
8. Screw fuse compartment screws (2) with a Phillips screwdriver until flush.

Fuse specifications:

Size: 3AB (1/4" x 1-1/4")

Rating: 500 Vac/Vdc, 25A, 30KA Interrupting Rating at 500Vac, Fast Acting

Fuse Disposal:

For fuse disposal, please follow instructions of fuse manufacturer, dispose of the fuse at a facility that processes electronic waste products, or return to Siemens for disposal.



Figure 19: Fuse compartment screws



Figure 20: Replaceable Fuse

SECTION 10.0

Mobile Phone App

Download and install the Siemens Intelli-Arc mobile App *Intelli-Arc* from the Google Play or Apple App store on a mobile phone running one of the following operating systems: iOS 16, Android 11 or a newer version.

The following instructions will show the steps for an Android Samsung Galaxy S23 device running Android version 13. The experience with other phones and operating system variants will be similar.

Pre-requisites:

A User shall power on the Intelli-Arc using one of the following methods:

- Safely installing using the provided power cords to connect to a load side of a breaker in a panel.
OR
- Using the provided shielded power cord to plug into a wall outlet.
OR
- Using the battery installed in the device.

B Once the Intelli-Arc is powered and functioning the Bluetooth LED with  symbol will blink to notify that it is in BLE pairing mode. After the Mobile App is connected with the Intelli-Arc, the Bluetooth LED will be solid to indicate BLE connected mode.

10.1 Mobile App Installation and Connecting to the Intelli-Arc using the App.

1. Download the Intelli-Arc app from the appropriate app store for your mobile device:

Note: Intelli-Arc uses Bluetooth communication to pair to a mobile device. The mobile device and Intelli-Arc device need to remain within 33 feet or 10 meters (line of sight) when connected for the best possible performance. There is a signal strength icon in the *Intelli-Arc* app to help determine appropriate range.



2. Navigate to the Intelli-Arc App icon on the Mobile device.
3. First time app use will require the user to complete a registration process. Follow the on-screen prompts to fill out information and receive a One Time Password by email.
4. Launch the Intelli-Arc app. This will bring the users to an "Available Devices" screen. If no available devices are seen in this screen, ensure Bluetooth communication and Location services are enabled on the mobile device and then drag down on the view to "Refresh" the available devices. The user can also look for previously saved waveforms by using the History button, learn more about the App using the About button and enter a Demo interaction by using the Demo button.

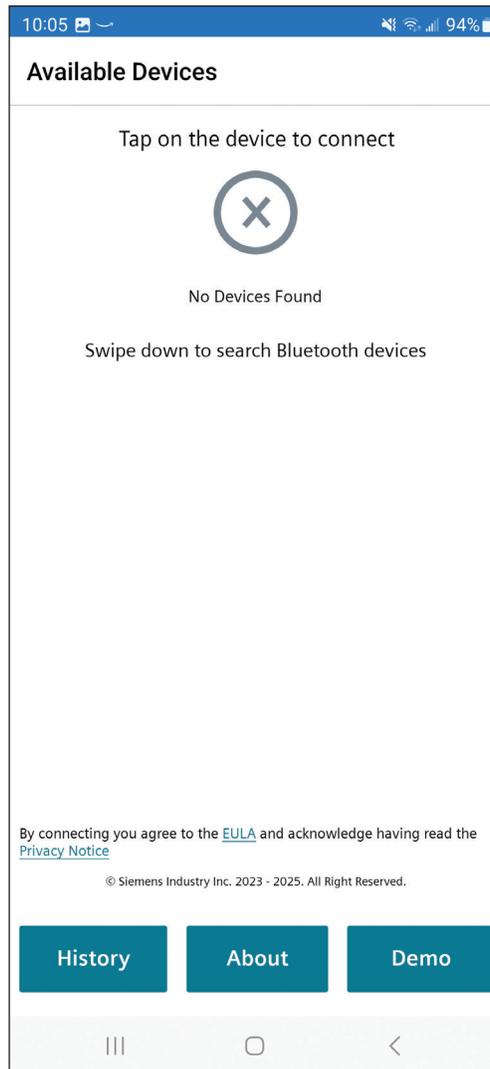


Figure 21: No Available Devices

5. On a refresh, other nearby devices including Intelli-Arc devices with Bluetooth Low Energy (BLE) connection will show in the list.

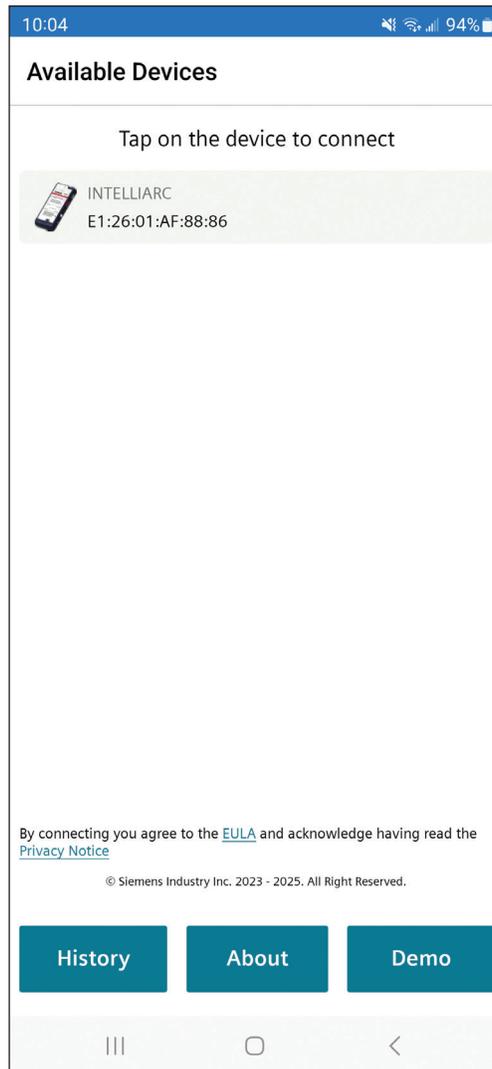


Figure 22: Available Devices screen

6. Tap on the Intelli-Arc device to connect with it. The Bluetooth LED on the Intelli-Arc will change from blinking to solid to indicate it is connected to the phone.

iPhone Pairing

Note: The following instructions are for iPhone devices only. The connection of the Intelli-Arc device with an Android device will skip the Bluetooth Pairing Request.

- A. Tap on the Intelli-Arc device to connect with it.

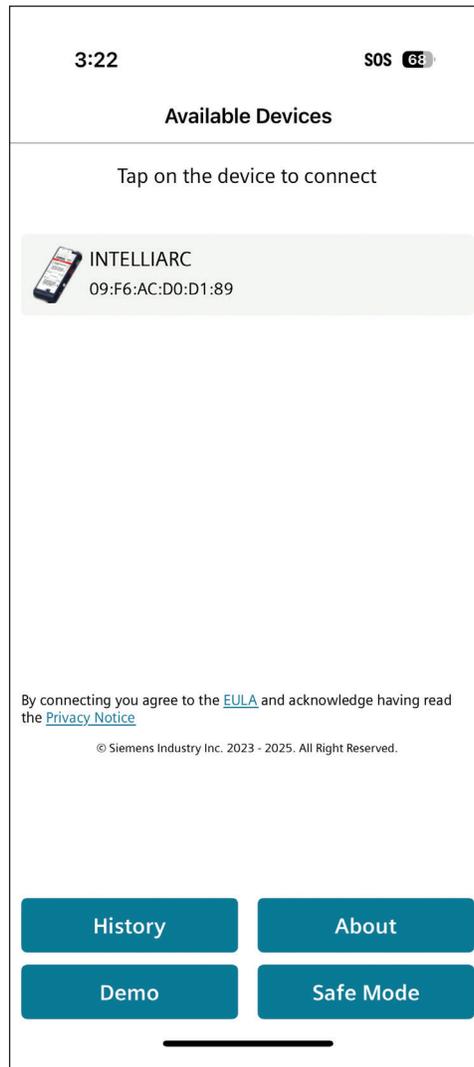


Figure 23: iPhone device: Tap on the Intelli-Arc device

- B. This will bring the user to a "Bluetooth Pairing Request" window.
- C. Once connected, the user will be brought to a "Dashboard" screen.

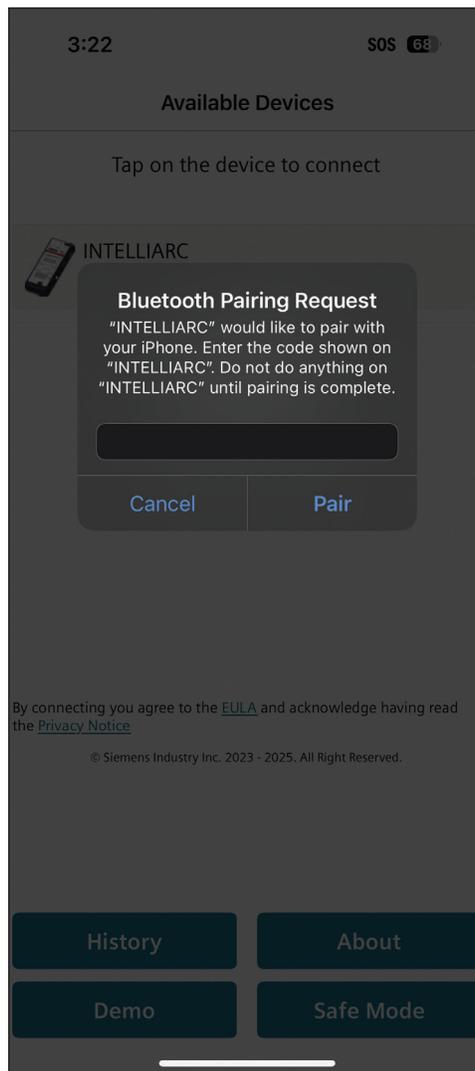


Figure 24: iPhone device: Bluetooth Pairing Request

- C. Enter the code **258456** and click Pair.
- D. If the user does not enter a code or enters an incorrect code, the error message appears in the lower half of the screen: "Unable to pair the device. Please try again and enter code 258456 when prompted."



Figure 25: iPhone device: Bluetooth Pairing Request

- E. Once the pairing is successful, the window refreshes momentarily.

- Once connected, the user will be brought to a “Dashboard” screen.

10.2 Dashboard

In the dashboard screen, the user can review the specific information about the connected Intelli-Arc device. The dashboard screen is similar in behavior to the previous generation product screen. There are sections of the display representing the levels of the respective signals.

On the dashboard screen at the top half of the screen, the user can review the following information of the connected Intelli-Arc device:

- Serial Number – An alphanumeric number representing the manufacturer serial number of the device
- Firmware version – This is the firmware/software version that is currently running on the device
- System Date – the system date

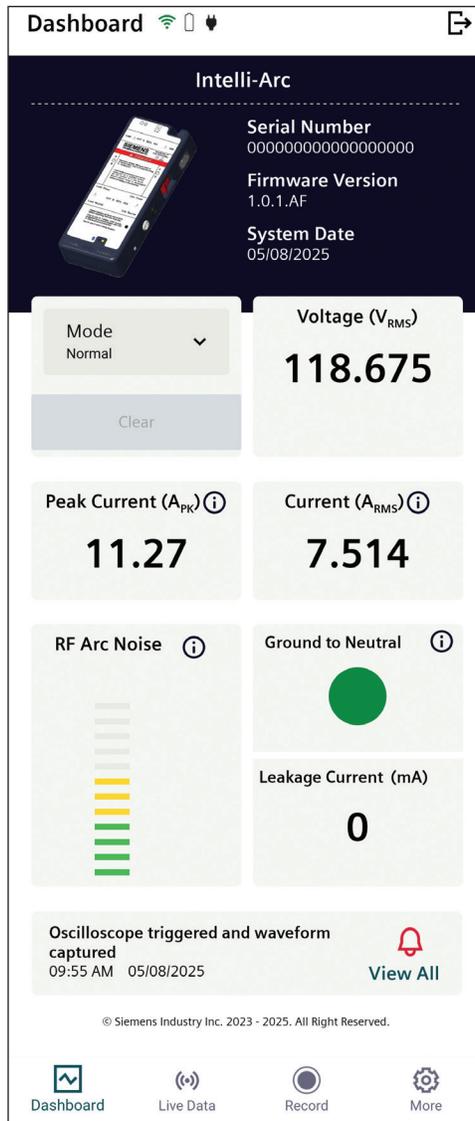


Figure 26: Dashboard screen

The Dashboard tab shows levels of signals measured by the Intelli-Arc device:

- RF Arc Noise
- Presence of Ground to Neutral condition
- Leakage Current in mA
- Peak current in A
- RMS Current in A
- RMS Line Voltage in V

To monitor a signal, the user can select one of the 3 modes of operation by selecting the mode using the drop-down menu under Mode:

- Normal (Default)
- Peak Hold
- Retrieve Trip Event

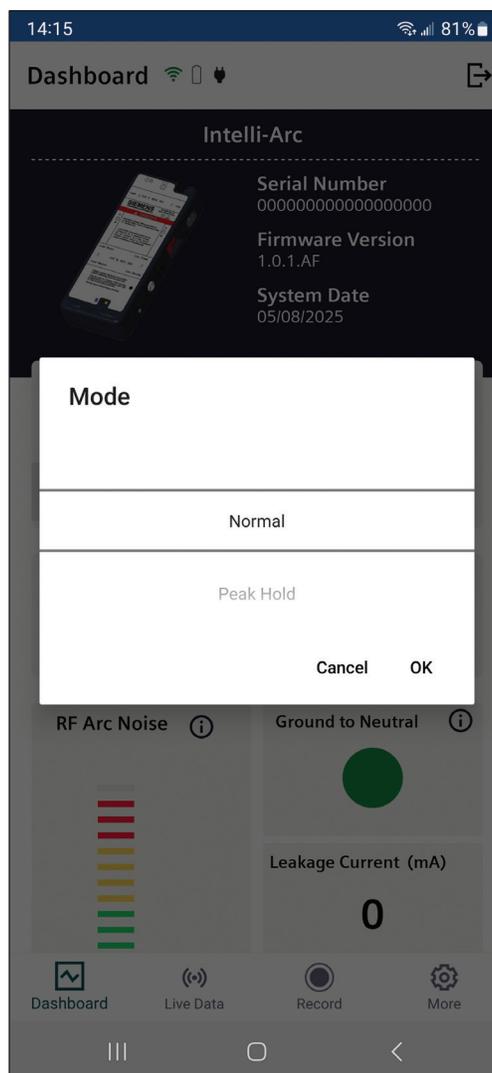


Figure 27: Mode selection in Dashboard

10.2.1 Normal mode

The “Normal” mode is the default mode of operation. In this mode the data for various parameters such as Voltage, Current, etc., updates continuously. The user can use the normal mode of operation to understand normal operating conditions of the various characteristics measured on the connected branch circuit.

10.2.2 Peak hold mode

The “Peak Hold” mode displays the values which get updated to match with the latest peak values measured by the Intelli-Arc. In this mode, the Clear button resets the values for new peak values to be measured. The values only change in this mode if a higher value compared to the current display is determined. Use the Peak Hold method to identify momentary spikes or temporary conditions that may be difficult to identify when the values are continuously changing.

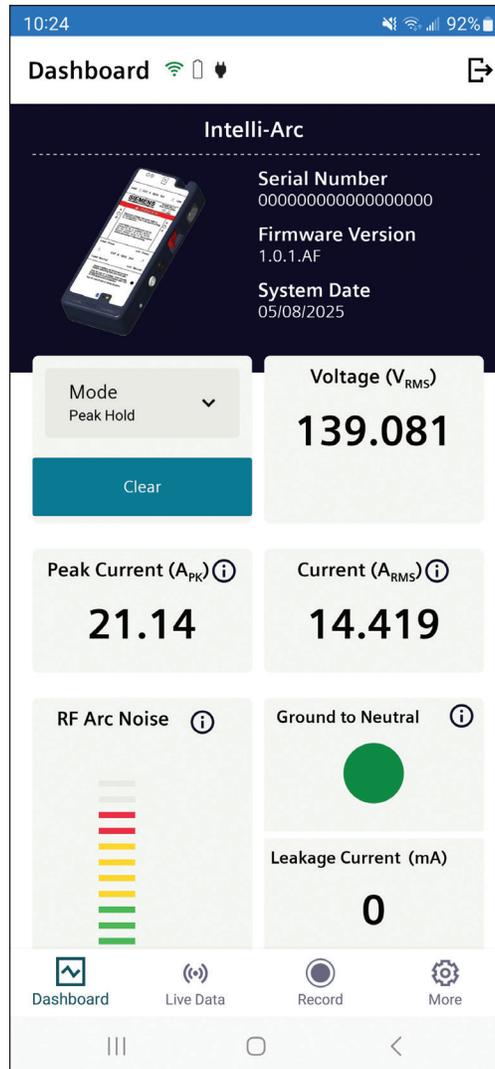


Figure 28: Peak Hold mode of operation

10.2.3 Retrieve Trip Event mode

The “Retrieve Trip Event” mode displays the logged values associated with a “breaker trip” event. To use this mode, a logging session must first be initiated (as described below). If there is a breaker trip event while logging, the data for various parameters such as Voltage, Current, RF Arc Noise, etc. associated with the trip event are displayed.

10.2.4 Logging mode

The user can put the Intelli-Arc device into logging mode by quickly double pressing the Logging button on the side of the unit.

The power LED indicated by ⚡ symbol will blink rapidly to indicate the Intelli-Arc is in logging mode. In this mode, the Intelli-Arc device will capture any anomalous event that needs additional scrutiny. A typical anomaly may cause the breaker to experience an unwanted trip condition. The Intelli-Arc device will continue to log in the logging mode during such an event and will lose power because of the breaker trip event. After the Intelli-Arc device is power cycled, the user can review the Dashboard or Record tab in the “Retrieve Trip Event” mode to display the last recorded values of the various parameters to help determine the event that caused the breaker to experience a trip condition.

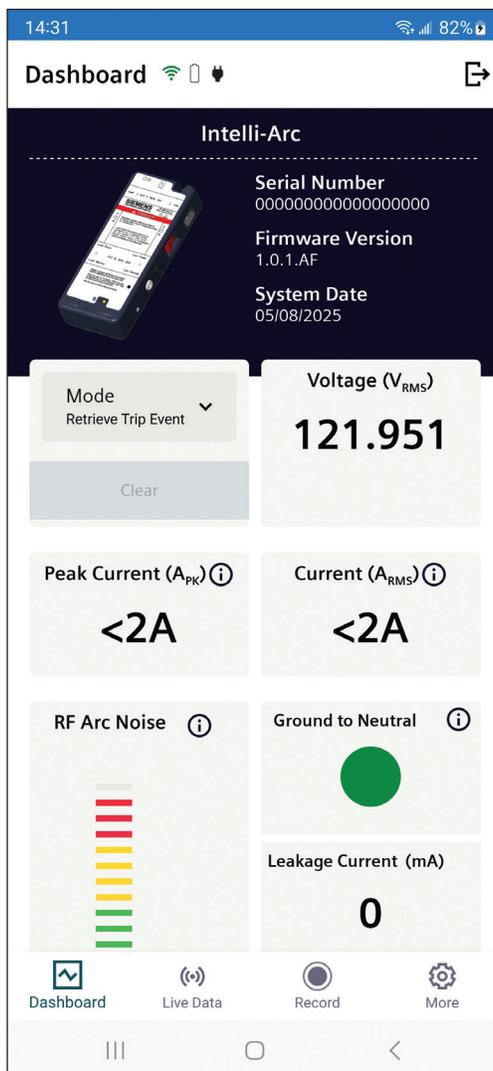


Figure 29: Retrieve Trip Event mode of operation

One of the breaker trip events recorded by the Intelli-Arc is a ground fault (via the presence of leakage current). To capture this condition, the user must put the Intelli-Arc device in logging mode. When the connected breaker upstream of the Intelli-Arc experiences differential fault current > 4 milliamps, the breaker may encounter a trip condition. See more about Logging Mode in section 10.2.4 Logging Mode on this page.

When the connected breaker trips, the Intelli-Arc will lose power and require the breaker to be reset to re-energize the Intelli-Arc and re-establish a connection to the *Intelli-Arc* App. Turn the connected breaker back on. After the Intelli-Arc reboots, navigate to the Dashboard tab and view the “Retrieve Trip Event” mode for more

details. In this mode, the user can navigate to the Leakage Current measured and observe the presence and magnitude of Differential Current (also known as Leakage Current) measured by the Intelli-Arc.

Another breaker trip type is the presence of Ground to Neutral fault. This occurs when Ground is tied to Neutral downstream of the connected breaker. To capture this event type, the user must first put the Intelli-Arc device in logging mode. When the connected Ground Fault or Dual Function Breaker upstream of the Intelli-Arc experiences a Ground to Neutral fault, the breaker will trip immediately. The Intelli-Arc will lose power and require the connected breaker to be reset to re-energize the Intelli-Arc and re-establish a connection to the Intelli-Arc App. Turn the connected breaker back on. After the Intelli-Arc reboots, the user can navigate to the Dashboard tab and view the "Retrieve Trip Event" mode for more details. In this mode, the user can identify the presence of the Ground to Neutral Fault by the Ground to Neutral light changing color from green to red. (see Figure 30).

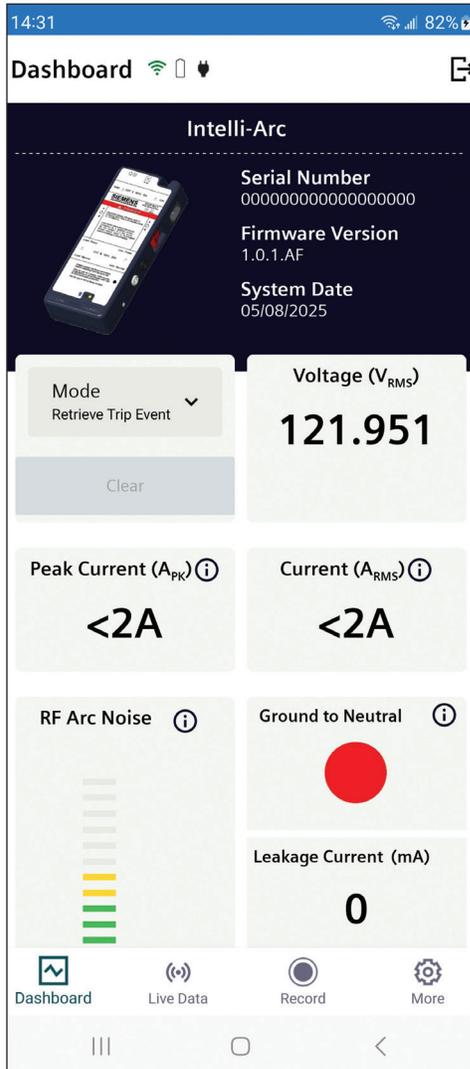
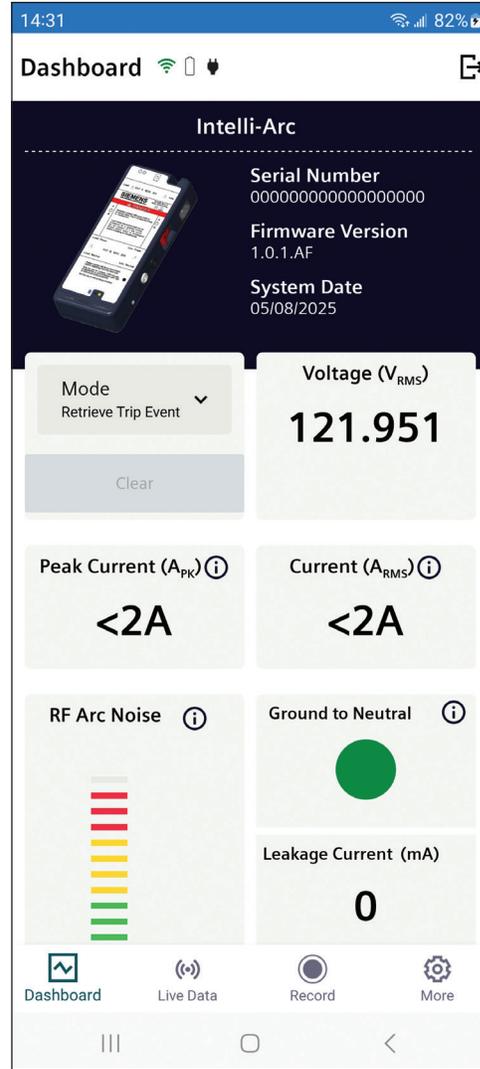


Figure 30: Retrieve Trip Event mode showing Ground to Neutral Fault



No Fault

Additional information regarding RF Arc Noise:

Clicking on additional information next to RF Arc Noise will show the 3 levels.

Typically, when the RF Arc Noise level measured by the Intelli-Arc is in the Red Zone, it likely will be characterized as an arc by the upstream breaker and result in a breaker trip event. When the RF Arc Noise level is in the Yellow Zone, there is a consideration that some arcing characteristics are present. When the RF Arc Noise level is in the Green Zone, RF Arc Noise is detected, but is not characterized as an arc by the Intelli-Arc, and the probability of a breaker trip event is unlikely.

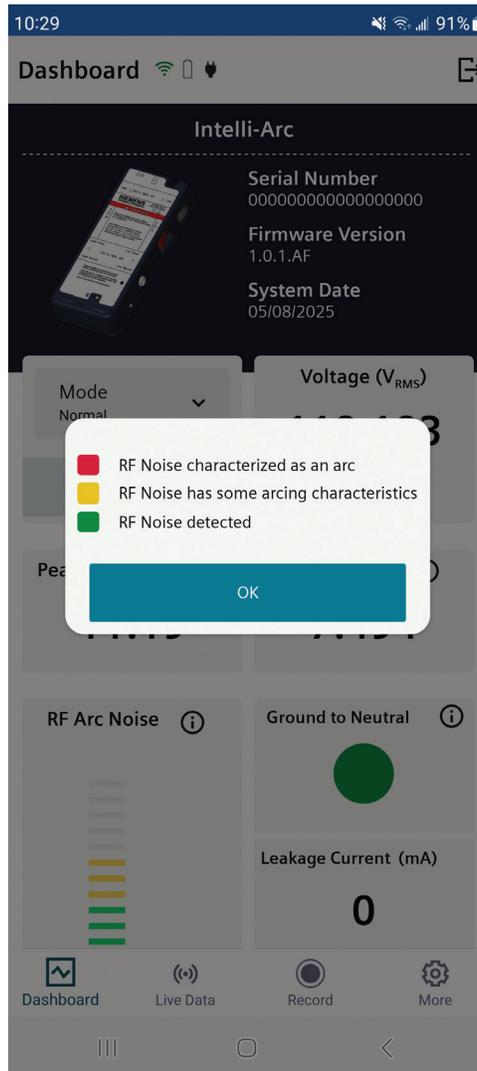


Figure 31: RF Arc Noise Level legend

Additional information regarding Ground to Neutral detection:

The display presents a status light that represents the presence of Ground to Neutral fault conditions. If the status light is Green, no fault is detected. If the status light is red, Ground to Neutral fault has been detected.

10.3 Troubleshooting Methods using the Intelli-Arc App

The *Intelli-Arc* App can be used to troubleshoot unwanted tripping issues. The app provides a method to record electrical conditions experienced by the branch circuit under test, and the recorded information can be shared with Siemens Technical Support for further evaluation (see Section 10.4 for more details). There are multiple ways the information can be recorded:

1. The user can review the live data using the Live Data tab (see Section 10.3.1). This method is typically suited when the user is checking for prevailing conditions on the branch during an on-site visit.
2. The user can manually record information on-demand or using the Record tab (see Section 10.3.2). This method is typically suited when the unwanted tripping event occurs frequently and is witnessed during an on-site visit.
3. The user can record trip event information by using Logging Mode ([See more about Logging Mode on Pg 41, section 10.2.4 Logging Mode](#)). This method is typically suited when the unwanted tripping event occurs randomly or hard to capture with Live Data or other modes during an on-site visit. This method requires the user to set up Logging Mode on the base unit before a trip event. After a trip event has occurred, the user can reconnect to the Intelli-Arc to download circuit information prior to the trip event.

Note: Once the cause of unwanted tripping has been identified, it is recommended that the root cause be addressed to eliminate future unwanted trip events in the future. Repairs to defects in wiring or damaged components should only be performed by a qualified person, e.g. a licensed electrician. Any issues with appliances should be addressed with the appliance manufacturer.

10.3.1 Live Data

The Live Data tab allows the user to see a real-time waveform selectable between Line voltage, RF Arc Noise and Load current. The user can use this mode to analyze the conditions of branch circuits by starting with turning off all appliances on that branch. The user can then gradually turn individual loads back on to identify in real-time specific loads that may be introducing conditions that are conducive to causing unwanted tripping conditions to the connected breaker upstream from the Intelli-Arc unit.

In Live Data mode, the user can choose to select which waveforms to display (Voltage, RF Arc Noise, Load Current) using the “Options” button from the Live Data tab. Once selected, the user can then press the “Play” button to start visualizing the electrical signals. The “Play” button transitions to “Pause” when the signal is displayed. The user can press the “Pause” button to stop the visualization of the desired signal for further analysis. Once paused, the user can pinch to zoom and drag the graph for more detailed analysis.

How to use the Live Data display screen:

1. Safely connect the Intelli-Arc device. (See Section 9: Intelli-Arc Installation).
2. Power on the Intelli-Arc device.
3. After connecting to the *Intelli-Arc* mobile app (as shown in Section 10.1), navigate to the “Live Data” screen by tapping on the Live Data tab.
4. From this screen, the user can select which measured signals to view, play, and pause from the Live Data tab.

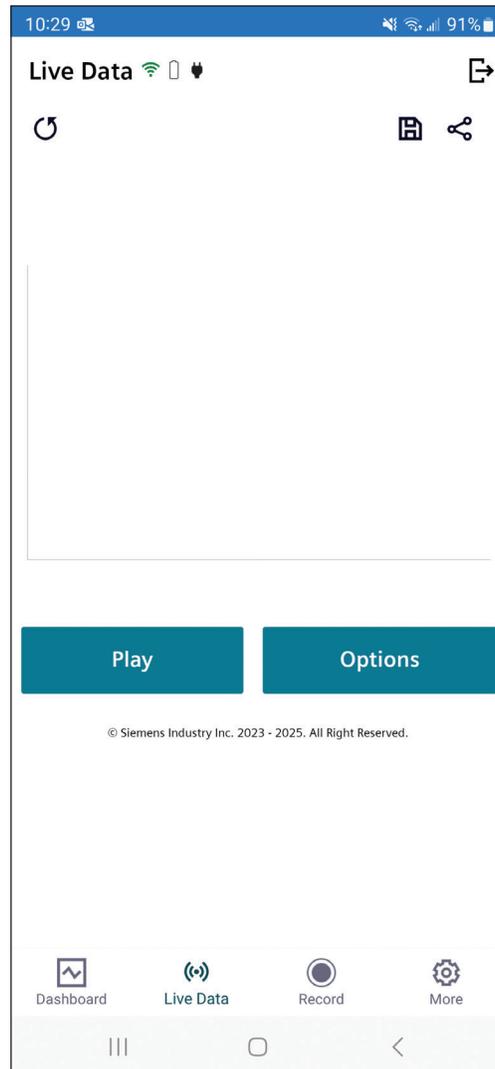


Figure 32: Live Data Screen

- 5 Using the Options button, the user can select which measured signals to display. The user can select between RF Arc Noise, Load Current and Line Voltage.

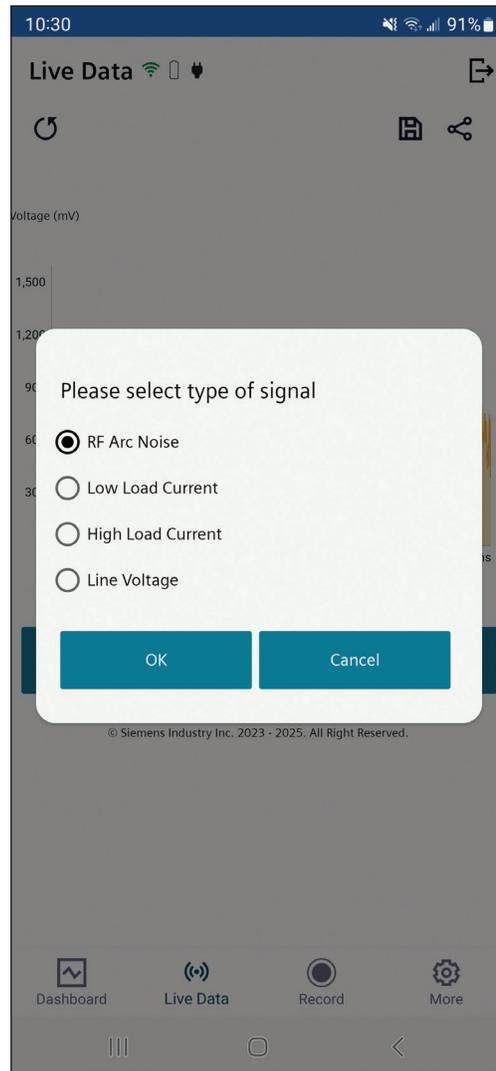


Figure 33: Live Data signal selection

6. After the user has selected a signal to display, tap the OK button.
7. To play the selected signal tap the Play button.

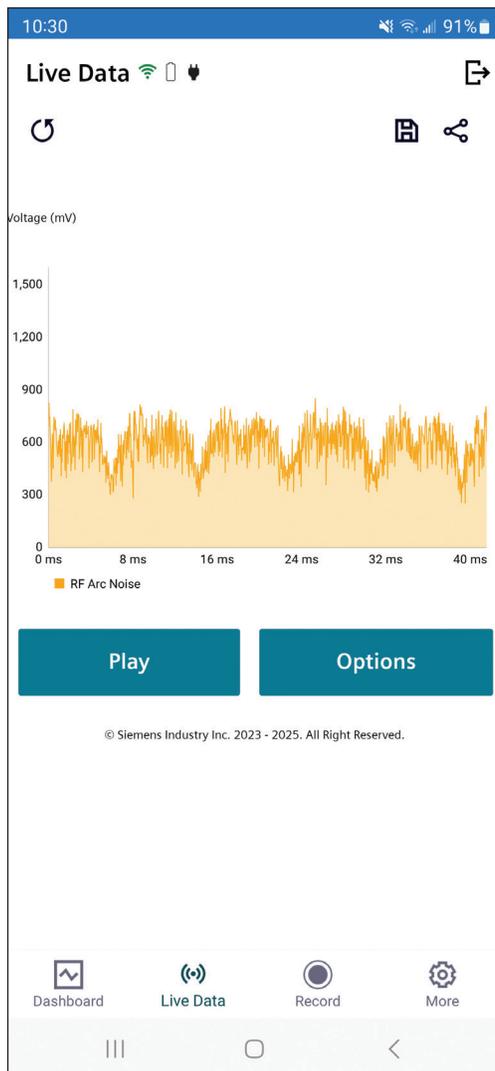


Figure 34: Live Data display

8. The user can also save the waveform as a recorded file by tapping on the “Save” icon and entering a File Name. There are provided guidelines regarding the acceptable characters for entering the file name. Once the file is named, tap the Save button and the message “Saved to history” will appear on the app screen of the mobile device. The information is saved in the History tab (under the Record tab) as well as viewable as an offline record when the user disconnects from the Intelli-Arc device. When disconnected, this can be found on the main “Available Devices” screen when the mobile app launches.
9. Users can also share the waveform with others by using the “Share” icon and entering a File Name. There are provided guidelines regarding the acceptable characters for entering the file name.

Tip: The waveforms can also be displayed horizontally by rotating the mobile device to a landscape view to analyze the waveforms more easily.

10.3.2 Record– Manual Capture

The Manual Capture mode causes the Intelli-Arc to allow recording of data the moment the Record button is pressed in the app. The manual record mode helps provide a baseline of the conditions experienced by the Intelli-Arc.

How to use the Record tab with Manual Capture mode.

1. Safely connect the Intelli-Arc device (see Section 9: Intelli-Arc Installation).
2. Power on the Intelli-Arc device.
3. After connecting to the *Intelli-Arc* mobile app (as shown in Section 10.1) navigate to the “Record” screen by tapping on the Record tab.
4. On this screen, the user can select the record settings, record information, and graph the recorded waveforms.



Figure 35: Record screen

5. Under the Settings heading, the user can select the Capture Mode by tapping on the down arrow next to Capture Mode. The Capture Mode determines what will trigger the Intelli-Arc to capture a new waveform.

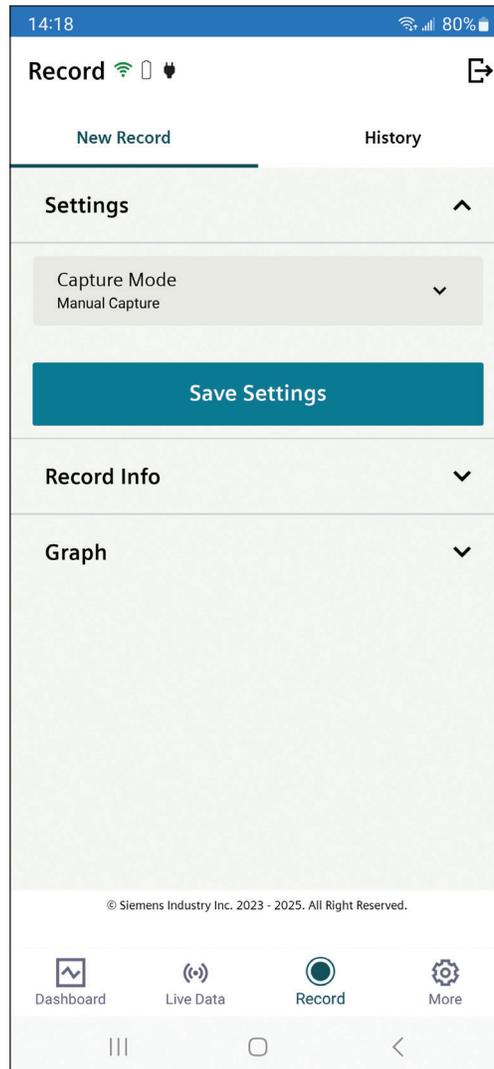


Figure 36: Enter Capture Mode

6. Selecting “Manual Capture” as the Capture Mode will allow recording of data immediately after the Record button is pressed in the app.

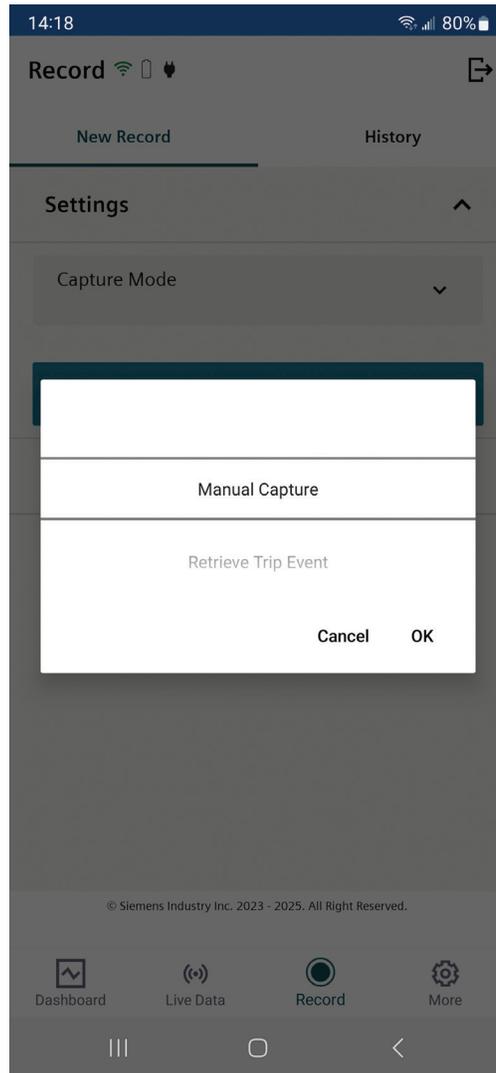


Figure 37: Select “Manual Capture” as Capture Mode

7. Tap OK to confirm selection.
8. Tap on “Save Settings”. The message “Trigger settings are saved to the device” will appear on the app screen of the mobile device.

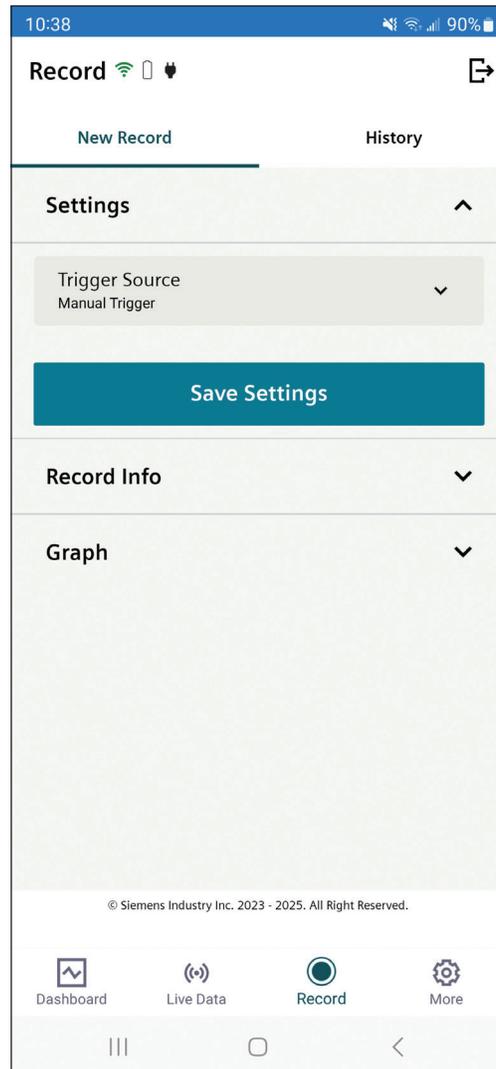


Figure 38: Save Capture Mode Settings

9. (Optional), Enter Capture information information by tapping on the down arrow next to “Record Info”. Entering information will help Siemens Support to correlate the recorded information with the entered load information during support sessions.

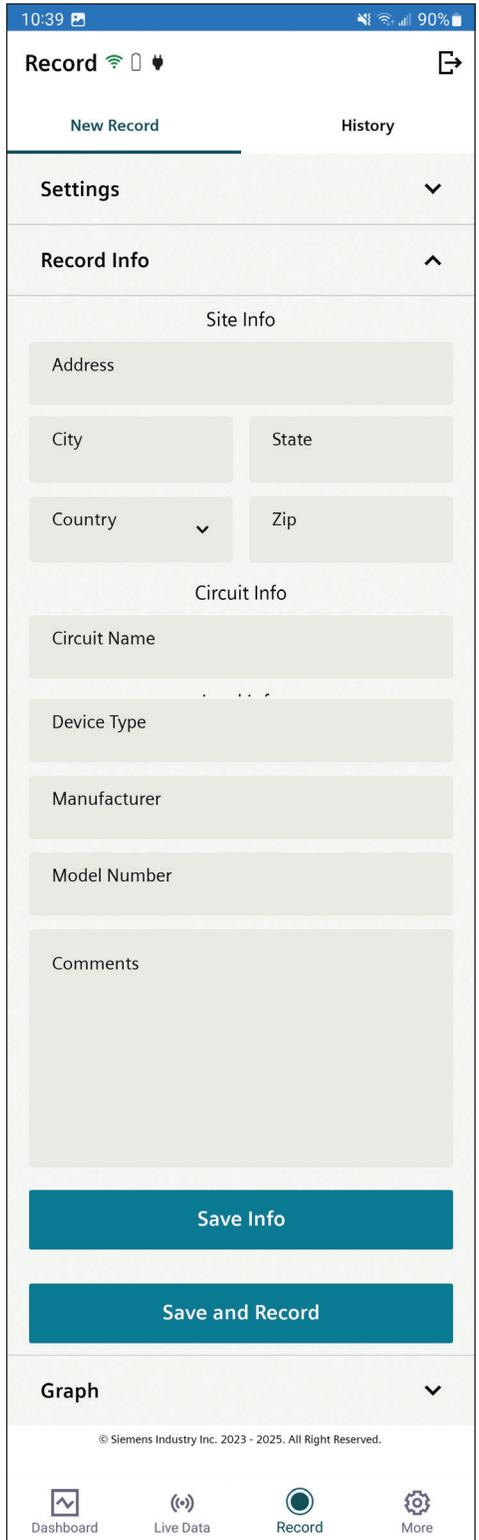


Figure 39: Enter Record information.

10. In this view the user can enter optionally:
 1. Site Address
 2. Branch or Circuit Name
 3. Specific information regarding the load such as Device type, Manufacturer, Model Number
 4. Comments

11. Close the “Record info” section by tapping on the up arrow.
12. Tap on the “Record” button to start extracting the triggered waveforms.
13. Once the capture notification circle is complete, fetched waveforms representing Load Current, Line Voltage, and RF Arc Noise will be displayed.

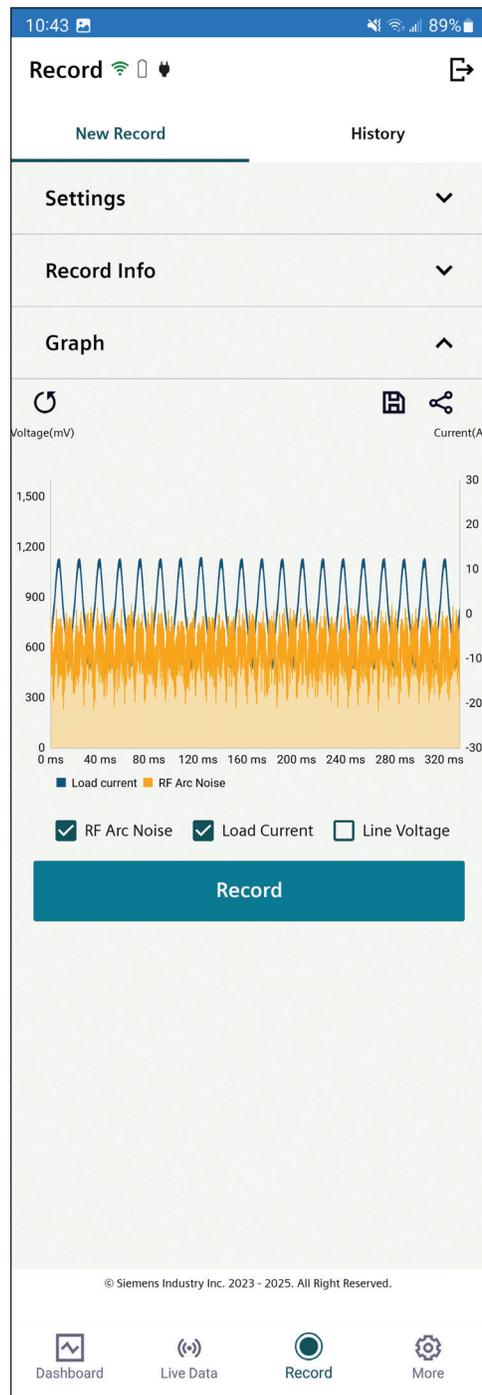


Figure 40: Displaying recorded waveforms

14. Deselect either of the waveforms from the check boxes to see finer details by pinching to zoom in on the selected waveforms.

15. Save the waveform as a recorded file by tapping on the “Save” icon and entering a File Name. Alphanumeric, _, -, and # characters may be entered for the filename. User can tap the save button and the message “Saved to history” will appear on the app screen of the mobile device.
16. Share the waveform with other contacts by using the “Share” icon and entering a File Name. There are provided guidelines regarding the acceptable characters for entering the file name.

Tip: The waveforms can also be displayed horizontally by rotating the mobile device to a landscape view to analyze the waveforms more easily.

10.3.3 Record – Retrieve Trip Event

The Intelli-Arc device has a logging button to enable data logging ([see Figure 3 on page 13](#)). A quick double-press of the logging button will enable data logging. The Power LED blinks at a fast rate to indicate logging is enabled. Once logging is enabled, the Intelli-Arc continues to log data and will save data to its internal non-volatile memory until it loses 120V line power. In order to capture infrequent trip events or those occurring outside scheduled site visits for troubleshooting purposes, the Intelli-Arc can be used in Receptacle Mode for extended periods of time.

Logging is useful when a device is causing the upstream circuit breaker to trip before allowing time to analyze using other modes such as Live Data or a Manual Capture recording. Logging will also record the events leading up to the trip to help pinpoint the root cause. In this mode, the Intelli-Arc blinks the power LED rapidly while continuously logging data to non-volatile memory. When power is removed (for example, by a circuit breaker trip), the data remaining in memory represents the events leading up to the trip. After restoring power to the Intelli-Arc after a breaker trip event, the data can be retrieved by reconnecting to the mobile app. A number of scenarios can cause a loss of power, for example when the branch circuit breaker experiences a trip because of fault or nuisance conditions.

How to use the Record screen in Retrieve Trip Event mode:

1. Safely connect the Intelli-Arc device (see Section 9: Intelli-Arc Installation).
2. Power on the Intelli-Arc device.
3. Enable logging mode on the Intelli-Arc by quickly double-pressing the Logging button on the side of the unit (see Figure 3 in Section 7).
4. Leave the Intelli-Arc connected and logging until the upstream power is removed as a result of a breaker trip.
5. Restore power to the Intelli-Arc (either by Line power or battery) and connect the app to the device.
6. After reconnecting to the mobile app as shown in earlier sections, navigate to the “Record” screen by tapping on the Record tab.
7. Under the Settings heading, select the Capture Mode by tapping on the down arrow next to Capture mode and select “Log Waveforms.”

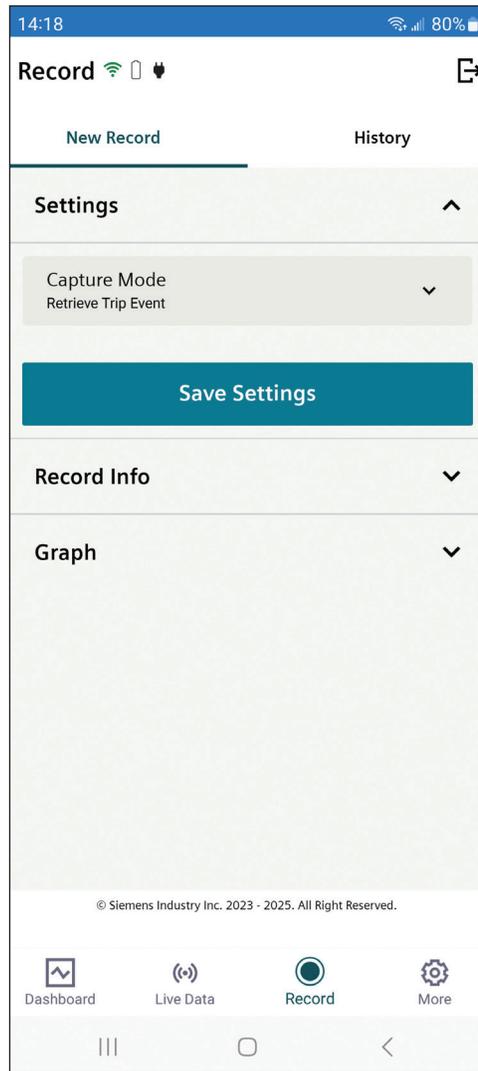


Figure 41: Enter Capture Mode

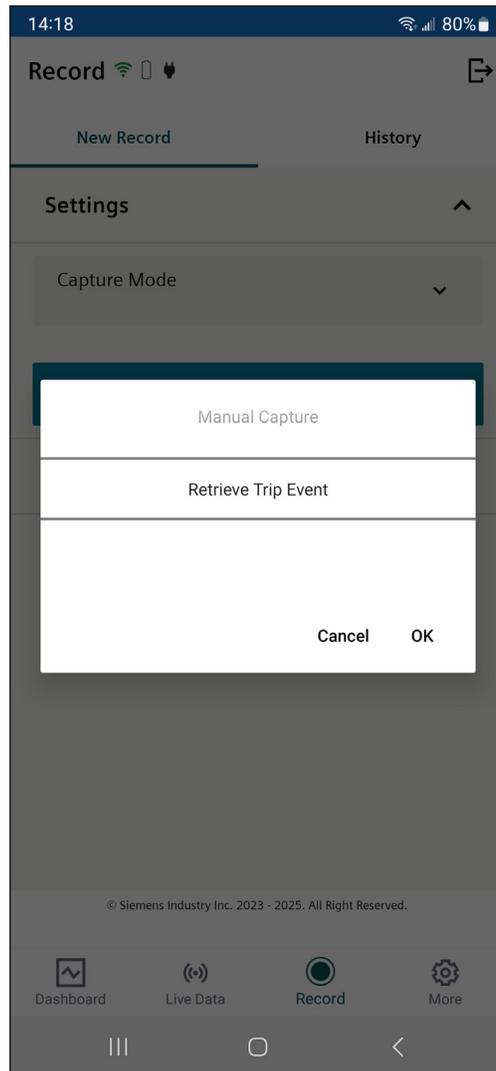


Figure 42: Select Retrieve Trip Event as capture source

8. Tap OK to confirm selection.

9. Tap on “Save Settings”. The message “Trigger settings are saved to the device” will appear on the app screen of the mobile device.

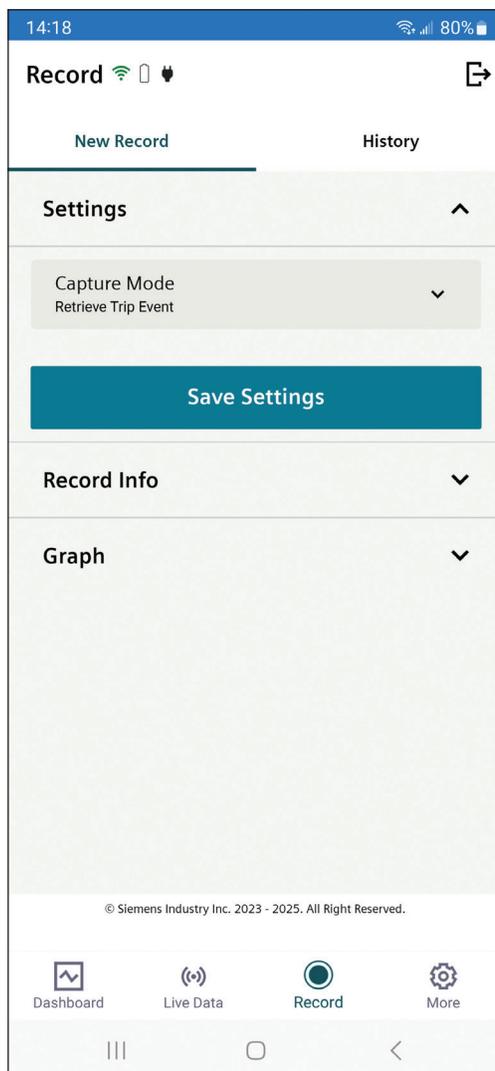


Figure 43: Save Capture Mode Settings

10. Tap the “Record” button to start downloading the saved log waveforms to the mobile device. Once the capture notification circle is complete, fetched waveforms representing Load Current and RF Arc Noise will be displayed.
11. Like the Manual Captured waveforms (Section 10.3.2), deselect either of the waveforms from the check boxes to see finer details by pinching to zoom in on the selected waveforms.
12. Save the waveform as a recorded file by tapping on the “Save” icon and entering a File Name. There are provided guidelines regarding the acceptable characters for entering the file name. User can tap the save button and the message “Saved to history” will appear on the app screen of the mobile device.
13. Share the waveform with other contacts by using the “Share” icon and entering a File Name. There are provided guidelines regarding the acceptable characters for entering the file name. Tip: The waveforms can also be displayed horizontally by rotating the mobile device to a landscape view to analyze the waveforms more easily

10.4 Sending Data to Siemens Support Team

Users can send saved captures of recently recorded events directly to Siemens for further analysis and troubleshooting after setting up a case with Siemens Technical Support.

1. The user can access the History section under the Record tab to review saved records.

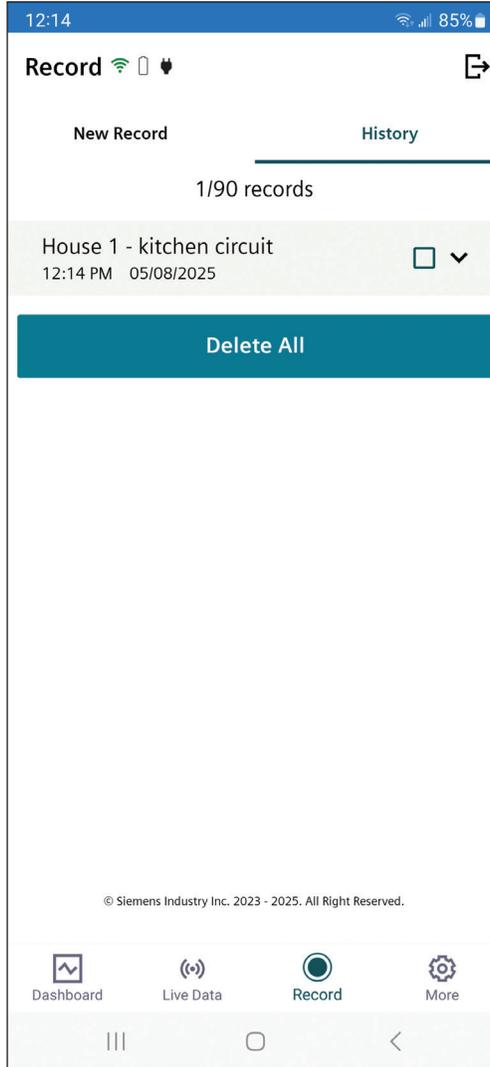


Figure 44: View History

2. Tap on the down arrow to review information about the saved records.

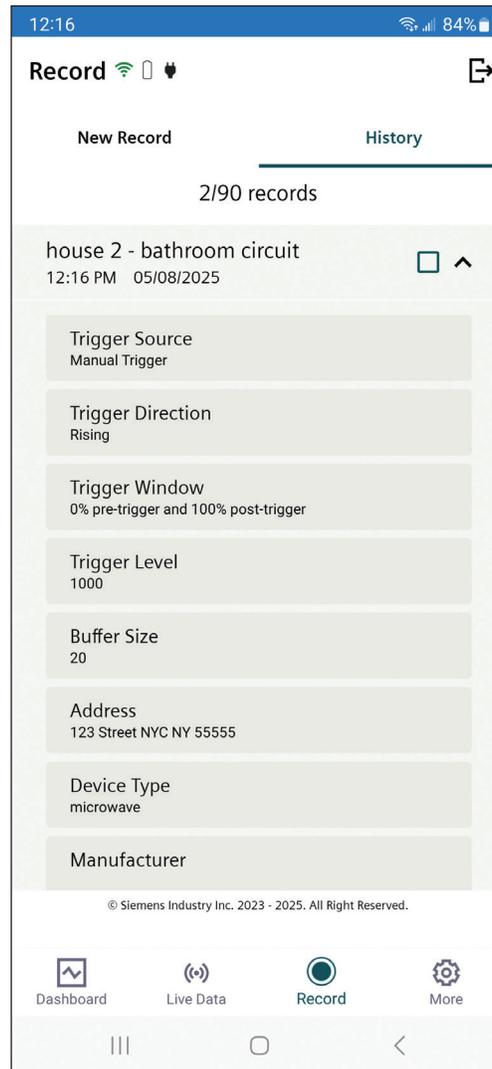


Figure 45: Viewed saved information in History

3. The user can view saved record waveforms by tapping on the Show button.
4. Send event files by using the share  icon.

10.5 Firmware update

The firmware (a type of low-level software) running within the Intelli-Arc can be remotely updated by the Intelli-Arc app. A new version of the app will be available to download from the App store containing the updated firmware every time Siemens makes the decision to update the firmware of the Intelli-Arc to add/update features. The user can update the firmware of the Intelli-Arc by following these instructions.

1. Tap on the “More” tab at the bottom of the app screen.

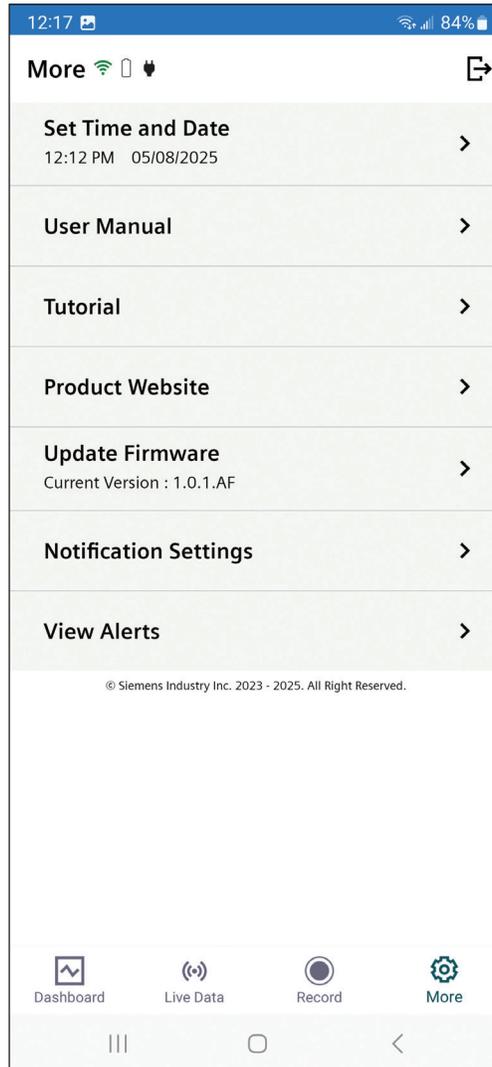


Figure 46: More settings information screen

2. Tap on “Update Firmware.” The current version of the Intelli-Arc’s firmware will be listed here.

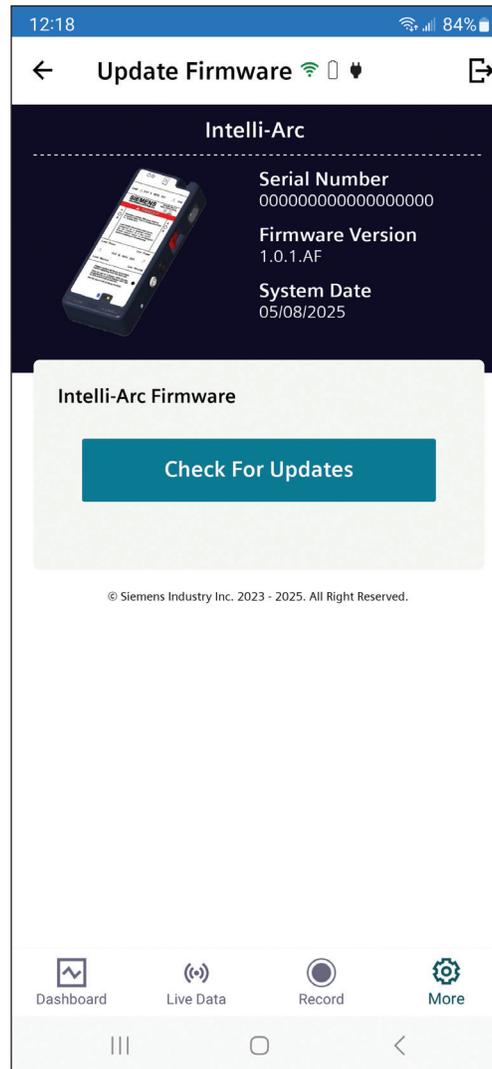


Figure 47: Check for Updates screen

3. Tap on "Check For Updates" to check if new updates are available.
4. If Updates are available, a prompt will appear that gives the user the option to update.

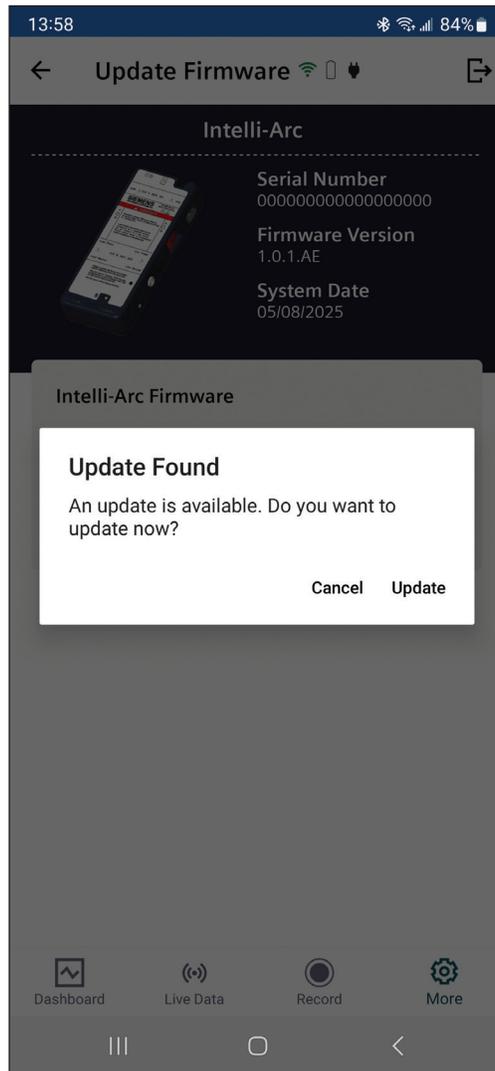


Figure 48: Update found

5. Tap on "Update" to proceed with the update.
6. The update procedure will show a progress wheel showing the update activity.
7. During the update, the LEDs will slowly blink (on and off) to indicate an update is in progress.
8. Once the update is complete, the Intelli-Arc device will reboot. If the update was successful, a prompt will be displayed in the app that says "Firmware updated successfully." Tap "OK" to navigate to the "Available Devices" page. The Intelli-Arc device will reappear in the Available Device list.

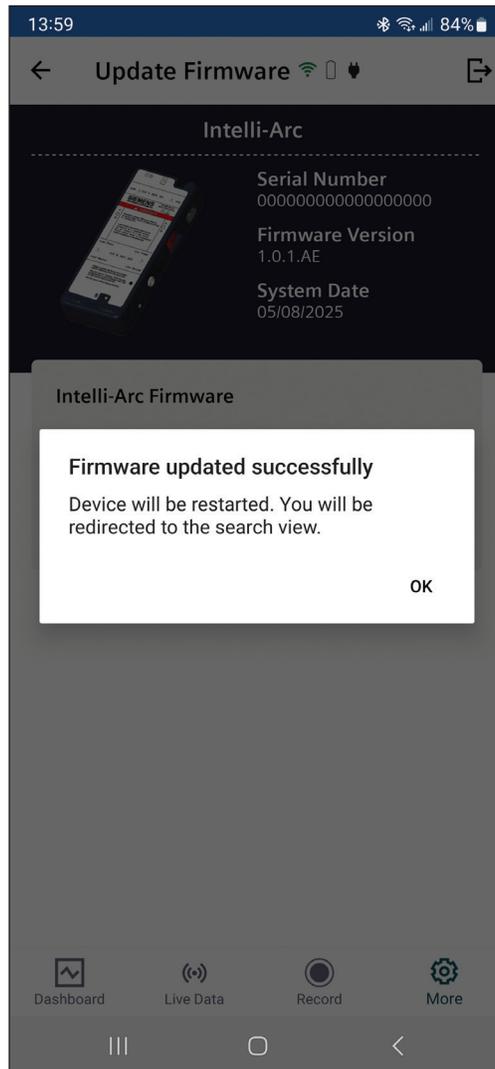


Figure 49: Firmware updated successfully

9. Tap on the Intelli-Arc device from the list to resume testing.

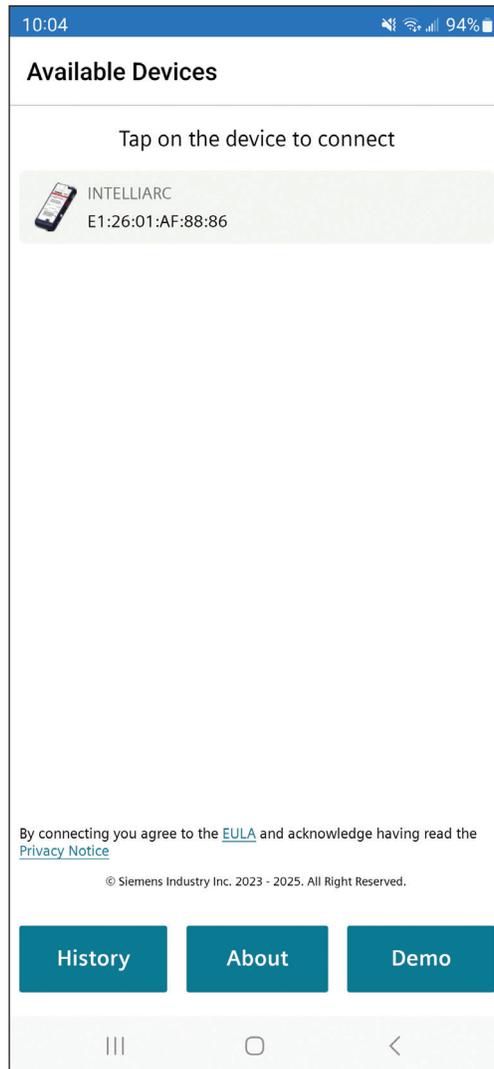


Figure 50: Device available after firmware update

SECTION 11.0

Product Care

The Intelli-Arc unit has no user serviceable parts inside and should not be opened. Doing so will void the product warranty.

If damaged, please return to Siemens Industry Inc. at:

3617 Parkway Lane

Peachtree Corners, GA 30092, USA

Cleaning

If the Intelli-Arc becomes dirty, it may be cleaned by wiping the outside surface with a damp rag, using water or isopropyl alcohol to wet the rag.

Water

The Intelli-Arc is not suited for use in wet or damp locations. It is not waterproof and must not be used while the product is damp. If it has been sprayed with water, it must be thoroughly dried before it can be used to prevent shock hazard.

Disposal

Product and Batteries are not recyclable. Please dispose of the product and batteries at a facility that processes electronic waste products or return to Siemens for disposal.

SECTION 12.0

Support

For further support, please contact Siemens Support by phone at 1-800-333-7421

SECTION 13.0

Warnings and Legal Information



WARNING

This product can expose you to chemicals including arsenic, which is known to the State of California to cause cancer. For more information, go to www.P65Warnings.ca.gov

FCC ID: YCP-STM32WB5M001

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Cybersecurity information

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial cybersecurity concept. Siemens' products and solutions constitute one element of such a concept. For more information about industrial cybersecurity, please visit www.siemens.com/cybersecurity-industry.

Legal Manufacturer

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www.usa.siemens.com/intelli-arc
Order No.

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