

**Generator Inlet Plug Installation Cheat Sheet**

**Generator Sizing**

**30-Amp Generator Plug**

Output Capacity: A 30-amp plug is typically rated for 120/240 volts, which translates to a maximum power capacity of 7,200 watts (7.2 kW).

Recommended Generator Size:

Minimum: 3,500 to 7,500 watts (depending on the appliances you want to power).

**Ideal for:**

Essential home circuits like lights, refrigerators, and small appliances.

Smaller HVAC systems or well pumps.

Example Generators:

Generators with a running capacity of 4,000 to 7,500 watts and a surge capacity of up to 9,000 watts.

**50-Amp Generator Plug**

Output Capacity: A 50-amp plug is typically rated for 120/240 volts, which translates to a maximum power capacity of 12,000 watts (12 kW).

Recommended Generator Size:

Minimum: 10,000 to 15,000 watts (depending on your energy needs).

**Ideal for:**

Powering larger homes, including multiple circuits.

Central air conditioners, electric ranges, or heavy-duty appliances.

Commercial equipment and job sites.

Example Generators:

Generators with a running capacity of 12,000 to 15,000 watts and a surge capacity up to 18,000 watts.

**Code Requirements 2020 NEC (Florida Electrical Code)**

**General Requirements for Transfer Equipment**

* **NEC 702.4: Capacity and Rating**
* The generator system must be sized appropriately for the intended load. Ensure the generator is capable of handling the critical loads connected via the inlet plug.
* Use manual transfer equipment (e.g., interlock kits) that is listed and rated for the application.
* **NEC 702.5: Transfer Equipment**
* Manual transfer switches or interlock kits must ensure that the generator and utility power cannot operate simultaneously to prevent backfeeding.

**Wiring and Connections**

* **NEC 110.3(B):** Installation per Manufacturer's Instructions
* The generator inlet plug, interlock kit, and associated equipment must be installed in accordance with their listing and the manufacturer's instructions.
* **NEC 110.12:** Mechanical Execution of Work
* Ensure all wiring and connections are done in a neat and workmanlike manner.
* **NEC 110.14:** Electrical Connections
* Connections must be suitable for the conductor size and material (e.g., copper or aluminum).
* Use terminals and wire connectors listed for the application.
* **NEC 300.4:** Protection of Conductors
* Conductors passing through metal framing or in contact with sharp edges must be protected with bushings or grommets.

**Generator Inlet Plug Installation**

* **NEC 406.9(B):** Weatherproof Covers for Outdoor Receptacles
* If the inlet plug is installed outdoors, it must have a weatherproof cover that remains weatherproof even when a cord is plugged in.
* **NEC 250.4(A)(5):** Grounding of Inlet Plug
* The inlet plug must be properly grounded to avoid electrical hazards.
* **NEC 300.5:** Underground Wiring Requirements
* If wiring to the inlet box runs underground, follow the burial depth requirements:
* Rigid Metal Conduit: 6 inches
* PVC Conduit: 18 inches

**Interlock Kit Installation**

* **NEC 408.36(D):** Field-Installed Barriers
* Interlock kits must prevent simultaneous connection of utility power and generator power. Use only kits listed for your specific panel.
* **NEC 240.15:** Circuit Breaker Requirements
* The circuit breaker for the generator connection must be a listed, double-pole breaker sized appropriately:
* 30-amp inlet: 30-amp breaker
* 50-amp inlet: 50-amp breaker

**Wiring Sizes and Protection**

* **NEC 310.12:** Conductor Sizing
* Use proper wire sizes for the generator inlet plug:
* 30-amp inlet: 10-gauge wire (10/3)
* 50-amp inlet: 8-gauge wire (8/3)
* **NEC 240.4:** Overcurrent Protection
* The breaker size must match the wire size to ensure proper protection:
* 10 AWG wire for 30-amp breaker
* 8 AWG wire for 50-amp breaker
* **NEC 250.122:** Grounding Conductor Sizing
* The equipment grounding conductor must be sized appropriately:
* 10 AWG for 30-amp circuits
* 10 AWG for 50-amp circuits

**Labeling and Identification**

* **NEC 702.7:** Signs
* Label the panel with a sign that indicates the presence of an alternate power source.
* Label the generator breaker and interlock kit to show which circuits are powered by the generator.
* **NEC 110.22(A):** Identification of Disconnects
* Clearly label the main breaker, generator breaker, and interlock mechanism.

**Grounding and Bonding**

* **NEC 250.30:** Grounding for Separately Derived Systems
* A transfer switch or interlock kit that switches the neutral conductor may require the generator to be grounded as a separately derived system.
* If the generator neutral is bonded to the frame, do not switch the neutral; keep the system bonded to the main panel.
* **NEC 250.34:** Portable Generators
* Portable generators that supply power through an inlet plug are typically not required to have an additional grounding electrode if connected to premises wiring via a transfer switch or interlock kit.

**Inspection Checklist**

* Generator Inlet Plug
* Is it outdoor-rated and weatherproof (if outside)?
* Proper wire size and connections?
* Interlock Kit
* Is it compatible with the panel and UL-listed?
* Proper installation ensuring no backfeeding risk?
* Conductor Protection
* Are wires sized and protected according to code?
* Are conduits properly installed and secured?
* Grounding
* Is the system grounded according to NEC requirements?
* Labeling
* Is the system clearly labeled for emergency use?

**Tools & Materials Required**

**Tools to Do the Job**

* Drill/Screw Gun/Impact Drill: to mount the box
* Drill Bit for block: if installed on stucco or block (match the screws)
* Drill Bit for Interlock Install (should be included with interlock)
* Screwdrivers (Flathead and Phillips)
* Wire Strippers
* Voltage Tester/Multimeter
* Pliers
* Measuring Tape
* Level
* Marker or Pencil
* Hammer
* Drywall Saw (if interior main)

**Materials Required**

* Wire
* For 30-amp: 10-gauge wire (10/3 Romex) (Black, Red, White, Bare).
* For 50-amp: 8-gauge wire (8/3 Romex) (Black, Red, White, Bare).
* Generator Inlet Box
* 15 feet
* 30 AMP NEMA L14-30P
* 50 AMP NEMA SS2-50P
* 240 Volt (make sure it’s 4 wire)
* 3r Rated if it’s Going Outdoor (most are 3R Rated)
* Conduit
* 6’ 3/4” car flex
* 1 - Car Flex 90 Connector 3/4"
* 1 - Car Flex Straight Connector 3/4"
* 2 - 3/4" Rigid Straps
* Electrical Tape (black)
* Breaker
* 2 Pole 30 for 30 AMP Install
* 2 Pole 50 for 50 AMP Install
* Pro Tip make sure the breakers match your panel manufacture (GE/Siemens/Square D, ETC…)
* Main Breaker Generator Interlock Kit
* Pro Tip make sure the Interlock Kit matches your panel manufacture (GE/Siemens/Square D, ETC…)
* Generator Cord (from Generator to Inlet Box
* 25 – 50 feet. Generator must be away from any windows, doors and soffits.

**Installation Steps**

**General Guidelines for 30-amp and 50-amp**

* Safety First
* Turn off power at the main panel.
* Use a voltage tester to confirm the circuits are not live.
* Select Location
* Position the generator inlet box near the main panel, and in an accessible area.
* Ensure the interlock kit is compatible with your panel model.
* Install the Inlet Box
* Drill mounting holes for the inlet box and secure it to the wall.
* Ensure it is at least 18 inches above the ground for outdoor installations.

**Wiring and Interlock Kit Installation**

* Run Conduit
* Install car flex conduit from the inlet box to the main breaker panel.
* Install straps within 3 ft of any connector of the car flex.
* Pull Wires
* For 30-amp, pull 10-gauge (10/3) romex cable (Black, Red, White, Bare).
* For 50-amp, pull 6-gauge (8/3) romex cable (Black, Red, White, Bare).
* Wire the Inlet Box
* Follow the manufacturer’s diagram for wiring the inlet box.
* Connect hot wires (black and red), neutral (white), and ground (green)
* Install Circuit Breaker
* Install a double-pole breaker (30-amp or 50-amp) in the main panel.
* Connect hot wires to the breaker terminals, the neutral wire to the neutral bar, and the ground wire to the ground bar.
* Step 5: Install the Interlock Kit
* Follow the interlock kit’s instructions for mounting it to the breaker panel.
* Ensure it physically blocks the main breaker from being turned on when the generator breaker is on, and vice versa.
* File or cut the panel cover as required to accommodate the interlock mechanism.

**Testing**

* Verify Connections
* Double-check all wiring for tightness and accuracy.
* Test the System
* Plug in the generator and turn it on.
* Engage the interlock to switch the panel to generator mode.
* Test circuits to ensure power is delivered correctly.
* Switch Back to Utility Power
* Turn off the generator breaker.
* Switch the interlock back to utility power mode and test.