

- Metallic conduit is liable to corrode over time, particularly at threaded connections. Such corrosion will increase resistance significantly. This problem is compounded when multiple links are involved. Application(s) of paint over the conduit may accelerate the corrosion process.
- Conduit is required to be anchored to secure surfaces. Often, it is bolted to structural steel members, which may function as ground conductors to very noisy equipment, such as compressors, motors, and so on. The coupling of these noisy signals into the Option 11C grounding system may seriously impair its performance. The resulting intermittent malfunctions can be difficult to trace.

Commercial power requirements

The Option 11C system is available in both AC-powered and DC-powered versions.

AC-powered version

The AC-powered version is presented in two separate sections in this Chapter:

- Optimal AC-powered installation
- Alternative AC-powered installation

The optimal installation of an AC-powered Option 11C system consists of a direct connection to the electrical system in the building, provided certain requirements are met. Refer to AC-powered installation later in this chapter for detailed information.

Alternatively, an approved isolation transformer may be used for AC-powered systems, where meeting the optimum requirements may be too expensive or may not be achievable. See “Alternative AC-powered installation” on page 45.

DC-powered version

With the DC-powered version of Option 11C, each cabinet is powered solely from a DC power source. See DC-powered version later in this chapter for detailed information.

AC-powered installation

It is recommended that a dedicated AC service panel be used with the Option 11C system. Equipment unrelated to the Option 11C must not be connected to this panel. Keep all lighting, fans, motors, air conditioning equipment, and the like, as “electrically separate” from the Option 11C system as possible.

Power from each outlet must meet the input requirements of at least one Option 11C power supply as itemized in Table 5 on page 44. Please check power requirements for other system equipment and install additional outlets if required.

Table 5
AC input requirements for each NTA04 or NTDK78 power supply

Voltage	Maximum rated input voltage 100-240 Volts RMS, single phase, 50-60 Hz.
Power (I/P max)	750 VA minimum
Outlet Type	NEMA IG5-15R for 120 Volt, 15 Amp supply NEMA IG6-15R for 208/240 Volt, 15 Amp supply

Site requirements

The following is a list of required site features for an optimal Option 11C AC-powered system installation.

If the conditions below cannot be provided with a dedicated panel, the use of an Isolation Transformer is recommended, as described under the heading “Alternative AC-powered installation” on page 45 of this chapter.

- **Dedicated circuit breaker panel**

Provides power solely to the Option 11C system and its associated hardware, such as TTYs, printers, and so on.

Note: It may not always be possible to power a complete system from a single circuit-breaker panel. For example, an expansion cabinet may be remotely located.

- **Insulated copper ground conductor**

Connects the ground bus in the dedicated panel to the main service panel ground or building ground reference. It must always be routed through the same conduit as the supply conductors feeding the panel.

- **Isolated-ground receptacles**

All outlets connected to the dedicated panel must be of the isolated ground type. A separate circuit is to be used for each device connected to the panel. Outlets serving the cabinets must be close enough so that the power cord can reach the cabinet power supply.

For systems equipped with one or two expansion cabinets, a separate outlet for each cabinet must be provided. Each outlet must be from separate circuits in the same panel.

- **Isolated ground bus in the electrical panel, where permitted by local codes.**

Location of power outlets

The maximum distance between a power outlet and the system cabinet depends on the length of the power cord. In North America, the power cord is 9 ft 10 in. (3000 mm) long. In countries outside North America, the power cord is 8 ft 2 in. (2490 mm) long.

Alternative AC-powered installation

If optimal conditions cannot be provided with a dedicated panel, the use of an Isolation Transformer with the following characteristics is recommended:

- 120/208/240 V input, over-current protected at primary
- 120/208/240 V available at secondary outputs, each circuit breaker-protected
- Primary and secondary windings must be fully isolated from one another
- Certified for use locally as a stand alone user product (CSA, UL, or other locally recognized markings apparent)
- Capable of providing power to all Option 11C system equipment operating simultaneously at full load
- Equipment unrelated to the Option 11C system must not be powered from a transformer serving the Option 11C system.