



# 11. NFPA 70 and 79

## About NFPA 70 and 79 adaptable cables

When wiring is to be done in the U.S., listing cable as described in NFPA 70 and 79 or AWM cable as described in NFPA 79 must be selected. The differences between listing cable and AWM cable are as follows.

Type of Cable	Different points
Listing Cable (Listing Certification) 	This is a general term for cables (listing cables) listed in National Electrical Code (NFPA 70) and Electrical Standard for Industrial Machinery (NFPA 79). Different cable types are used depending on usage conditions (application, location, wiring method, current, voltage, etc.).
AWM Cable (Recognition Certification) 	A cable that is listed in the Electrical Standard for Industrial Machinery (NFPA 79) and treated as a component to be incorporated into the final product, with restrictions on its use. For details of the restrictions, please refer to NFPA 79 section 12.9.

## Cables that can be used for power limiting circuits

There are several types of listing cables (CL2, CL3, etc.) that can be used for power limiting circuits, and the cable to be used depends on the type of circuit. In addition, the types are ranked, and the higher type is compatible with the lower type. For details, please refer to Tables 1 and 2. If you would like to reduce the outer diameter of the cable, set the circuit configuration to Class 2 or Class 3 and select a CL2 or CL3 type cable.

Table 1 Cables for Class 2 and Class 3 Circuits

Circuit Type	Supported cable types	Notes
Class 2	CL2,CL3,PLTC,CM,CMG	When configuring a circuit, a Class 2 power supply certified by a recognized authority is required.
Class 3	CL3,PLTC,CM,CMG	When configuring a circuit, a Class 3 power supply certified by a recognized authority is required.

※Class 2 and Class 3 circuits have power supply and voltage limitations. For details, refer to NFPA70 Section 725.121, Table 11(A) and 11(B).

Table 2 Cable Type and Compatibility

CL2 < CL3 ≤ PLTC < CM < CMG

### <Cautions for wiring>

If cables of different voltages are to be routed in the same duct or enclosure (including inside a panel), separate them with a partition board or rack, or route them at a distance of at least a certain distance. (Section NFPA 79-2018.13.1.3 and NFPA 70 725.136).

If it is difficult to separate and secure the distance between cables, use cables with the same voltage rating as the maximum voltage of the cable to be wired.

## About TC-ER cables

When pulling out cables from the cable tray for wiring to electrical equipment, TC-ER cables can be wired without protection by raceways or conduits (see Figure 2), which has the advantage of reducing construction time and costs.

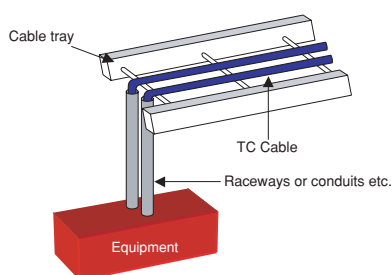


Fig.1 Wiring with TC cables

Wiring with TC cables from a cable tray requires protection with conduits or other methods.

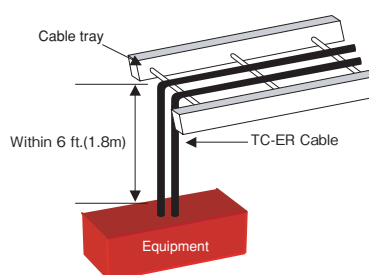


Fig.2 Wiring with TC-ER cables

Wiring with TC-ER cables from a cable tray does not require protection with conduits or other methods. However, each component needs to be supported (fixed) so that the distance between the cable tray and equipment is within 6 feet(1.8 meters).