

Instrumentation Tray Cables

In 1996, a new type of cable called *Instrumentation Tray Cable* (ITC) was created and added to the National Electrical Code (NEC) as Article 727. Type ITC cable, as it is called, is expected to gain rapid acceptance in the industry because it solves a problem that has haunted instrumentation cable users for years.



What Was The Problem?

Modern industrial plants have hundreds or even thousands of low power circuits that monitor and control various plant processes. Most of these circuits are served by PLTC, CL2, CL3, FPL and other similar power-limited cable types. However, many low power circuits carry signals that fall outside the power and waveform limits defined by the NEC for these traditional power-limited circuit types. As a result, cable users were often forced to use standard (non-power-limited) 600V power cable on low power circuits in order to comply with the NEC.

The use of standard 600V power cable on low power circuits has two major disadvantages—the cables are larger in diameter and cost more than the power-limited types. The larger cable diameter also makes necessary the use of larger conduits, larger cable trays, larger fittings, etc. which further increase project costs.

What are ITC Cables and Where Can They be Used?

Instrumentation tray cables are UL Listed as Type “ITC” and comply with the requirements of a “brand spankin’ new” UL standard—UL 2250. ITC cables have either copper or thermocouple alloy conductors ranging in size from 22 through 12 AWG. They are rated 300 volts, but can only be used on circuits operating at 150 volts or less. ITC cables can be used on circuits that carry up to 5 amps of current (3 amps if a 22 AWG conductor).

ITC cables have two or more conductors and can be shielded and/or armored. They are suitable for use in hazardous locations under certain conditions, in cable trays and in conduit. In addition, ITC cables can be installed aerially on a messenger, under the raised floor of a control room, or directly buried *if so marked*. Type ITC cables can *not* be

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installed in the same conduit or tray with cables operating at more than 150 volts or more than 5 amps.

About now, sharp readers are probably thinking that ITC cables sound a lot like Power Limited Tray Cable (PLTC). If you're one of them—go to the head of the class! ITC cables are identical in construction and materials to the PLTC cables that we all know and love.

More Good News

Now for the *really* good news. UL has decided to permit existing PLTC Listed cables to also carry the ITC marking, assuming of course that it meets the requirements of both UL standards. What this means in practical terms is that manufacturers, distributors and users will not have to make, stock and install an extra cable type. Existing PLTC cables will simply become available with the ITC mark in addition to the original PLTC mark. PLTC/ITC marked cables are just becoming commercially available. By the end of 1997, we expect virtually all PLTC cables to carry both PLTC and ITC markings.

National Electrical Code stories don't always have happy endings—but this one certainly does.

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