



Dekoron Fieldbus Cable

Description of Fieldbus

- Fieldbus is an all digital, two way, multi-drop communications system used for field instruments and control room systems.
- It allows multiple field devices, such as sensors and actuators, to be connected to the same cable.
- It will require smart instruments and controllers.
- It will feature interconnectability of devices and interchangeability among manufacturers.

Merits of Fieldbus

4 Major Advantages

- Reduction in wiring costs due to the reduction in the number of cables.
- Reduction in wiring space.
- Enhanced system operation flexibility as a high precision and efficiency in control is achieved.
- Improved equipment safety with easier detection of, and solutions to, network troubles.

Dekoron Fieldbus

Construction

- Insulation Material- XLPE
 - Good dielectric constant
 - Excellent Flame Retardance
- Meets Test Standards
 - FF 844 Fieldbus standard
 - Listed by UL as PLTC/ITC
 - Suitable for use in Class I Division 2 Hazardous Areas
 - Suitable for Class 1 Division 1 in Gardex[®]

Cable Electrical Performance

Dekoron fieldbus cable performance

Requirement	FF 844	Obtained
Impedance, Ohms at 31.25 kHz	100 +/- 20	101.4
Attenuation, dB/km Maximum	3.0	2.36

Cable Electrical Performance

Dekoron Fieldbus Cable performance

Requirement	FF 844	Obtained
Capacitive Unbalance maximum, nanoFarads/km at 31.25 kHz	2.0	1.07
Conductor DC resistance maximum, Ohms/leg	22	21

PVC Insulated Cable Performance

PVC Shortcomings

- Standard Analog PVC twisted pairs will not meet the demanding FF 844 Fieldbus Standard.

PVC Shortcomings

PVC Insulated Cable performance

Requirement	FF 844	Obtained
Impedance, Ohms at 31.25 kHz	100 +/- 20	63.1
Attenuation, dB/km Maximum	3.0	4.00
Capacitive Unbalance maximum, nanoFarads/km at 31.25 kHz	2.0	3.81

Fieldbus Trends

- Multiple Customers are requesting 16 AWG Fieldbus rather than 18 AWG
- Conductor Resistance 4.18 vs. 6.67 Ohms/1000 Ft at 20° C (37% reduction)
- Result is increased # of instruments per leg or increased run lengths.
- Thicker insulation is required to meet electrical characteristics